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JANUARY 19, 1889.

THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. XXV. REGULAR EDITION NO. 682.

ARCHITECTURE

ENGINEERING

DECORATION

TICKNOR & COMPANY

CONSTRUCTION

BOSTON MASS.

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Building for the Bell Telephone Co. of Missouri, St. Louis, Mo.
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REVIEW OF THE PRINCIPLES OF SANITARY PLUMBING AS NOW ACCEPTED BY ALL LEADING SANITARIANS.

THE main object to be attained is the complete removal of waste matters from the premises the instant they are generated. This can only be accomplished by observing the following rules:—(1.) Avoid all cesspools. (2.) Make all waste-passages as small as possible to effect their purposes. (3.) Construct every fixture on the principle of the flush-tank. (4.) Make every trap seal-retaining and self-scouring. (5.) Make all joints tight. (6.) Select the simplest appliances and the simplest system consistent with safety. These rules are self-evident enough to be accepted as plumbing axioms, and are sufficient to produce perfect work. The "Sanitas" Appliances have been constructed with a view to their fulfilment in every respect, and an examination of the steps leading to the development of these appliances will best illustrate the principles of Sanitary Plumbing, showing the faults which should be avoided, and the objects which should be sought.

Beginning with the trap: In the first place mechanical seals have been discarded as being unreliable, unnecessary, and as obstructing the water-way. We start with the simplest form of water-seal trap, the ordinary S-trap. This trap answers all our requirements except that it has no power to retain its seal under the variations of atmospheric pressure occuring within the waste-pipes. To remedy this deficiency the pot-trap was developed from the S-trap by simply enlarging its upcast limb, a sufficient enlargement gives it a temporary power of resistance, but creates a cesspool having no self-cleansing power and, accordingly, the trap clogs, under sinks, with grease and ultimately loses its original resisting power. To avoid this difficulty we have turned the pot-trap on its side and reduced the size of its body. This permits the air to pass through the trap above the water without driving the latter out before it, as would be the case with a perpendicular body equally reduced in diameter. To still further increase the power of resistance to siphonage the body was next bent into a quadrangle, giving several reflecting surfaces, which throw back this water under siphoning action while they allow the air to escape, and, finally, the two parallel sides of the quadrangle were merged into a single body having a reflecting partition and a large clean-out cap. This gives us the perfected Sanitas-Trap, which has proved itself to be both anti-siphonic in properly arranged plumbing-work and substantially self-cleansing either with or without venting. It is more resisting than a vented S-trap.

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The Sanitas is a Scientific System of Plumbing, having Simplicity and Safety for its Basis. It is also by far the most Economical System.

Avoid Infringements and Imitations which are described as being "as good as the 'Sanitas;'" they are not, they are very inferior as well as illegal.

PLUMBING APPLIANCES

Considering next the Lavatory. These should always be constructed on the principle of the flush-tank, their discharges filling the water-passages "full-bore," so as to keep them clean. The overflow and outlet passages should be combined in the form of a stand-pipe, thus doing away with the usual foul, inaccessible and badly jointed lead overflow-pipe, and the troublesome and dirty plug and chain. The stand-pipe should be operated by a simple mechanism above the slab, for convenience and cleanliness, requiring but a single movement of the hand, and all parts should be of solid and durable construction, while the stand-pipe should be easily detachable for cleansing. The Sanitas Lavatories are all constructed after this principle, and they are the first ever so constructed. The stand-pipes are made of either plated metal or of earthenware, like the fixture itself, and the whole device produces a very ornamental effect, especially when decorated in colors to correspond with the decoration of the earthenware bowl. Finally, the ideal water-closet should have the simplicity of the short-hopper, with the sanitary advantages and convenience of the improved modern closets. More than this, it should be practically noiseless, anti-siphonic, quick-acting, self-sealing, and free from spattering or waste of water. These desiderata have been attained in the Sanitas Water-Closet of which we sketch the outline in section. The supply-pipe between the cistern and the closet discharges into the latter below the level of its standing water, and being without air-pipe, stands permanently full of water, hence the action is instantaneous and the noise of flushing is deadened. This and the peculiar construction of the flushing-rim and water-supply passages cause the waste to be discharged with wonderful speed and effectiveness; and at the same time so quietly that with the cover down and the toilet-room door closed, no sound of flushing can be heard from without. The closet is highly ornamental in appearance, hence no other wood-work is required than the seat and cover, and these may be supported directly on the earthenware itself, which is constructed with this in view. The Sanitas System, taken together, is the most economical as well as the only safe system of plumbing, as avoiding the dangers and complication of special trap venting. Whether vented or not it is now admitted that safety requires a trap to be *anti-siphonic*, the vent-pipe alone not being reliable. The Sanitas Trap holds sufficient water to resist, when properly set, any *back pressure* that can occur in good plumbing with properly vented soil-pipes. ● For more detailed description and illustration of the Sanitas Appliances, see our other Advertisements and the Circulars of

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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XXV. Copyright, 1889, by TICKNOR & COMPANY, Boston, Mass. No. 682.

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Entered at the Post-Office at Boston as second-class matter.

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WHATEVER may be the result in the matter of the Massachusetts State-House competition, two things of service to the profession have been accomplished, one which concerns public ethics, and the other which will have a certain weight as a semi-legal precedent. To be sure, both the utterances to which we refer are merely legislative and not judicial, and so fall short of what is desirable. Still, it is no small matter for so important a body as the Massachusetts Senate Committee on Finance to report that a resolution looking to the remodelling of the terms of competition for the State-House alteration "ought to pass." Nor is it without its value that Mr. McDonough, of Boston, should declare, without exciting contradiction, that any architect laying his plans before the Governor on January 20, in accordance with the terms of the original advertisement of competition, would "have legal claim against the State." We hope, if any designs are submitted and the authorities find themselves disposed to withhold the promised awards, that the architects who may have furnished designs in strict compliance with the terms of competition will carry their case at once before the courts. The entire profession could afford to contribute funds for prosecuting such a cause and Massachusetts, if the case went against her, would willingly sacrifice the money for the sake of aiding to establish so desirable a precedent. We trust the action of the House in recommitting the resolution for further consideration will not prevent its being finally enacted.

THE manly protest of the Massachusetts architects against the unsatisfactory terms of competition offered by the committee of the Legislature for designs for the State-House enlargement, and still more, perhaps, the cordial support which, as our columns show, has been accorded to their position by the best architects in all parts of this country and Canada, has had the effect of causing the unanimous adoption in committee of a resolution, given in full in another column, which increases the appropriation for premiums from thirty-seven hundred dollars to eight thousand, extends the time for submitting designs to the end of March, appropriates five hundred dollars for expert advice in making the decision, and directs that the architect whose plan is adopted shall be employed to superintend its execution. So easily has been won the first encounter in what many thought would be a desperate and almost hopeless battle, and so easily will those persons generally win who have courage and self-respect enough to stand out for what they know to be fair treatment. As we have often said, the public bears no malice toward architects. It wants their services, and is willing to pay a reasonable price for them, and to treat those who can furnish them with all due consideration, but of what architects would call proper consideration it has not the smallest idea. Hitherto, the decent architects have been generally too modest or too proud to say what sort of treatment they wanted, and have left the field of official competitions to the sort of persons who consider it a favor to be kicked, and the public has supposed that all architects were of the same humble disposition with those who ran after its state-house and school-house "jobs." Now that this illusion has been dispelled, and the architects of reputation have declared their position in regard to open competitions, the public, far from resenting the movement, will, we venture to say, be pleased at having found out what architects really want, and at being enabled at last to frame invitations which will be acceptable to them. Of course it will, as it always does in matters outside of its every-day experience, only emerge from one blunder to plunge into another, and the axioms of fair competition are still nearly as far as ever from being really understood by anybody but architects; but the latter will, at least in Massachusetts, have learned the lesson that they can generally get decent treatment by asking for it, and that, if they do not claim it for themselves, nobody else is likely to volunteer to be their champion.

WE doubt if many of our readers have taken any part in the Grant Monument competition, the terms of which were very poorly calculated to attract architects and designers of the better class; but it is of some interest to know that about a hundred drawings and models have been sent in, and that the Executive Committee of the Monument Association has appointed as its jury of experts to look over the designs, and report on their merits to the Committee, Messrs. Post, Ware (W. R.), Le Brun, Ware (J. E.), Renwick, architects and Professor Wolf. After that is done, it is possible that all the designs may be exhibited to the public, for an admission-fee, the proceeds to be added to the monument fund. Whether such an exhibition would do much to increase the fund may be doubted, the public in general taking about as much interest in architectural drawings and designs as in Egyptian hieroglyphics, but it would have a certain attraction for the profession, and we hope the idea may be carried out.

BELGIUM is a place where architectural competitions are very much in vogue, being favored by the profession, as well as the public, and the secret of the mutual satisfaction of both parties to these may perhaps be inferred by comparing the following programme, abridged from the notice published in *L'Emulation*, with the terms usually proposed to architects in this country. The invitation is issued by the city of Verviers, which proposes to build a small theatre this summer, to cost about ninety thousand dollars, and calls architects to a two-fold competition. For the first competition, each participant is to furnish sketch plans and sections at one-two-hundredth the full size, or very nearly one-sixteenth of an inch to the foot, and elevations at double this scale, all rendered in tint, together with a memorandum of materials to be used. Each set of sketches is to be signed with a cipher, and must contain two envelopes, both endorsed with the cipher, one containing the real name of the author, and the other, marked "Vote," the name of the architect whom he wishes to have on the jury. These plans are to be handed in by March 1, and will then be judged, the decision being promised before March 15. The number of competitors to be admitted to the second trial is not given, but six hundred dollars will be equally divided among those chosen by the jury, whatever the number may be. The date for closing the second competition is to be fixed hereafter. Each competitor is to send plans, sections, and elevations at a scale of one to one hundred, or about one-eighth of an inch to the foot, rendered in tint, together with an estimate of cost of the rough work, and estimates, prepared by specialists, of the cost of heating, electric-lighting, and stage-fittings. The jury will be the same as in the preliminary competition, and the author of the design placed first, if it is found that his design can be executed for the specified sum, is to be appointed architect of the building, and is to be paid five per cent on the total cost, in return for which he is to furnish all the drawings and details required, the city providing the necessary superintendence, through its Department of Public Works, at its own

expense. The architect is to be paid one per cent on the proposed cost when the principal contracts are signed, and four per cent on each payment made to the contractors afterward. The authors of the plans placed second and third in the second competition are to receive three hundred dollars each, in addition to their share of the six hundred dollars awarded in the preliminary competition. In case the design placed first cannot be contracted for within the specified sum, the municipality is to have the option of having it remodelled by the author, or of taking possession of it and employing some other architect to remodel it. The jury is to consist of seven members, one of whom is to be the City Commissioner of Public Works; the second another specified municipal official; the third a manufacturer of the city; the fourth an architect nominated by the city; the fifth the city-engineer; the sixth an architect designated by the Société Centrale des Architectes; and the seventh the architect receiving the greatest number of ballots from the competitors.

MR. FRANCIS HOOPER recently read before the Royal Institute of British Architects an excellent paper on French building laws, the provisions of which become every day of more interest to the inhabitants of our growing cities. The general municipal regulations in regard to building in Paris are known to most of our readers, but a good deal is to be learned from the different customs prevailing in the provincial towns. Outside of Paris, for example, when it appears that the widening of a street or the removal of an obstruction will soon become desirable, a survey is made, the value of the land to be taken is appraised as if it were vacant, without regard to the buildings that may be standing upon it, and the town or city buys it at this valuation, stipulating with each owner that so long as the building upon his part of the land remains fit for occupancy he shall not be disturbed in the possession of it, but that no structural repairs shall be made to the walls or foundations of the portion standing on the land acquired by the public authority, which would tend to prolong their existence. By this sensible arrangement the town or city acquires the land necessary for its future improvements without having to pay for any buildings on it, loss of rent, damage to tenants, or other expenses, and at a time when the cost of the land itself is probably much less than it would be later, when the improvements are actually in progress, while the expropriated owner is comforted by enjoying for some years not only the undisturbed possession of his house, but compound interest on the value of his land, and the changes desired are effected as surely as by the methods in use here, and at a fraction of the cost, although the process is a slower one.

A NEW device for reproducing drawings is described in the *British Architect*, which seems likely to find extensive application in architects' offices. In principle it appears to partake both of the autotype and the hektograph, with more advantages, and fewer disadvantages, than either. The drawing is made with lithographic ink or crayon, as in the autotype process, but instead of transferring it to stone, it is executed directly upon a prepared plate of zinc, which may be had of suitable texture for either pen or crayon, and is said to be very pleasant to work upon. The plate is next covered with a fixing solution, which is allowed to dry, and is then washed off with water. The third step is to transfer the drawing to the printing pad, which is done by applying ink with a roller, and placing the plate and the pad in contact under pressure. The paper for printing is next pressed on the pad, and receives an impression exactly like the original drawing. If several copies are desired, a corresponding number of pads may be treated, or successive transfers may be made on a single pad, either washing it with cold water after each application, or trusting to the accuracy of the register formed by bars provided for the purpose. The original plate is cleaned with a special solution, and used for other drawings for an indefinite period.

A NEW device for blue-printing large drawings has been lately used, which many architects who have only small frames may find useful. A cylinder, of any material, covered with felt, is used instead of a frame. The cylinder should be long enough and of sufficiently great diameter to allow the drawing to be wrapped around it without overlapping. The sensitive paper is first drawn around the cylinder, and the tracing placed over it and smoothly stretched by means of clamps, or double hooks with springs. The cylinder is then placed in some sort of framework which will allow it to be revolved, either by hand or by a weight. The printing is done quite as rapidly as under glass, and the impressions are sharper, as the tracing-cloth can be drawn around the cylinder so tightly as to remove the wrinkles which always appear under the glass in the ordinary frame. We should think that the paper-barrel manufacturers might furnish cylinders three or four feet long, and sixteen inches or more in diameter, which would serve an excellent purpose, and might be mounted, for printing, in brackets outside the office-window, with an endless cord and two pulleys for securing rotation, and the office-boy for a motor. By using rubber bands, a large number of negatives could be placed on the cylinder at once, over a sheet of sensitive paper of suitable size, and printed together.

THE *Builder* describes a new bath-house just built in Frankfort-on-the-Main, which seems to solve the problem of cheap public bathing more successfully than anything of the kind yet attempted. The building, which is placed in the centre of a small square in the workingmen's quarter of the town, is octagonal in plan. Each side of the octagon measures fourteen feet, which would give a diameter of about thirty-four feet. The walls are twelve feet high at the eaves, and rise, with a pitch sufficient to carry off water, to a central portion, also octagonal, which rises to a height of twenty feet. The central octagon, which is about twelve feet in diameter, contains the furnace in the basement. the drying-room for linen in the first story, and a hot-water tank above, the chimney being in the centre of all. Around the middle octagon are ranged fourteen trapezoidal cells, and outside of these is a passageway. The segment nearest the entrances is reserved for a towel store-room and administration. There are two entrances, one for men and the other for women, and between them is the ticket-office, which communicates with the store-room behind it. Four of the cells are allotted to women, and ten to men, by intercepting at the corresponding point the exterior passageway, but the proportion can be varied as required. A water-closet is provided in each division. Each cell is entered from the passageway, and is divided by a waterproof curtain into two parts. The outer part, next the passageway, forms a dressing-room, with chair, mirror, books, and linoleum carpet. The inner portion contains a basin, with hot and cold water and a douche, the temperature of which can be regulated at pleasure, the waste-water passing off under the wooden grating on which the bather stands. The charge for a bath, including a clean towel and soap, is two cents, and the place is already visited by two or three hundred bathers a day. The building cost less than five thousand dollars, and stands on public ground. Supposing the number of bathers to average only two hundred per day, the gross income, at two cents each, will be twelve hundred and fifty dollars a year. The *Builder* thinks that fuel, water, light, washing, attendance, and wear and tear would not be more than seven hundred and fifty dollars a year, which leaves a net profit of ten per cent on the capital invested. With us the expenses would be greater, but at three or four, or perhaps five cents for a bath, the profit of such an undertaking ought to be considerable, and the benefit to the public health would be incalculable.

A NEW appliance for increasing the speed of steamships was recently described by M. Gouilly to the Société des Ingenieurs Civils, which promises to be of use. Every one who has watched the operation of the propeller in a screw-steamer must have regretted the waste of energy involved in the splashing and churning of the water about the screw by its revolutions, and the displacements which can be seen to extend to a considerable distance laterally. M. Gouilly's plan for preventing a large part of this waste of power is to have the propeller work in a hollow, truncated cone attached to the stern of the ship, having its larger end open and directed toward the bows, and its smaller end continued for a short distance by an open cylinder. One would think that such an apparatus would be a terrible drag upon the motion of the vessel, but its effect in concentrating the energy of the screw is so great that more than a thousand trials, made with thirty different screws, have demonstrated that the force of propulsion is, on an average, doubled, and in many cases is increased in a far greater proportion.

AUGUSTE RODIN, SCULPTOR.[1] — I.

IT has been well said that the Paris *Salon* is an epitome of human life. To its welcoming doors come each year the sufferings, the struggles, the self-sacrifices and the labors of the artists of all nations. In it, centre their hopes, their fears, their joy and their desperation. It is the competing ground of all the world of art; a living panorama, a Mecca, a confession and a judgment. Human above all, time alone confirms or reverses its dictum.

Among the many hundreds of works of sculpture of every conceivable description that sought admission to the *Salon* of 1877, was an unobtrusive nude figure, in plaster, accompanied with the usual paper upon which were written, in a strange hand, these explanatory words: "Auguste Rodin, born in Paris, pupil of Messrs. Barye and Carrier-Belleuse, Rue Bretonvilliers, number 3 — 'L'Age d'Airain'; statue, plaster."

The character of the modelling of this statue was so unusual, and its general effect so life-like, that some members of the jury of admission suspected that it was not a veritable piece of modelling, but a "*moulage sur nature*" — a reproduction, by pressing, from a mould on the living model — and, therefore, not entitled to admission. This suspicion meant that the figure was a fraud and its author an imposter. The statue caused considerable and varied comment among the jury, one of them remarking: "If it is not a cast from Nature, he who made it is stronger than we are." It was finally accepted, under protest, and put in a side space near the entrance reserved for objects of questionable origin and merit.

To the author of "The Age of Brass," who is one of the most sensitive of men, and loyal to the most exacting requirements of his art to a degree as rare as it is high; who had studied and labored like a slave in the most complete obscurity, and suffered the acutest privations for more than twenty years, the suspicion that he was a dishonest man and his work a counterfeit was humiliating to the last degree. Nor was this all, he had been an obligatory server of others all his life, and he had drank to the depths the bitter and despicable experiences that fine souls endure in their struggle against poverty outside the pale of human sympathy, and subject to the abuse of ignorant and brutal employers.

As the first complete result of all this, Rodin had, at the age of thirty-seven years, brought up to the *Salon* his simple work that he might see how it compared with that of good sculptors; and, more than all, to answer to himself as to whether fate had forever destined him to be a workman, or would now possibly reveal to him that he was an artist. But the inexplicable goddess who had thus far so persistently followed him in dark clouds, now appeared in a new and unexpected guise — she placed the mark of trickster upon himself and his work. He went to the *Salon* as one to be shunned. His statue was pointed at with scorn. What to do he did not know.

If there is one fact more than any other that makes Paris the heart of the art-world, it is that a real work of art or a real artist is never lost. Some one, sooner or later, finds them out and helps to put them into their deserved place. The living, radiating life of this fact is, that there are hundreds of artists, writers and men and women in private and public life, whose keen and receptive sensibilities are quick to discover and ready to welcome the appearance of everything that has in it the life, nerve and worship of art. They go to the *Salon*, not alone interested in the general average of the art of France, but to find out and acquaint themselves with the slightest and earliest indications of the coming of new men, and the appearance of advancing notes of progress. It was the good fortune of one of these devotees, Adrien Gaudez, himself a sculptor of superior ability, to first see and fully appreciate the high qualities of the "The Age of Brass," after its arrival at the *Salon*. He immediately hastened to find some of his friends and lead them to the statue. They saw it with surprise, examined it with increasing interest and admiration, and left it fully convinced that it was one of the few master-pieces of French sculpture. Nor was this enough, they obtained a better place for it, where it could be seen by every one, and they talked about it and sung its praises as only enthusiastic French artists can.

At the same time M. Edmond Turquet, an ardent lover of art and of independent judgment, and who was also a member of the State Committee of Fine Arts and one of buying-committee of the *Salon*, in making his first visit to the section of sculpture, was strikingly impressed by the statue, of the author of which he had never heard. Soon after, when the buying-committee were making their first visit to the *Salon*, M. Turquet brought them before it, and invited their attention to its remarkable merits. To his astonishment they informed him that it was noised about that the figure was a reproduction from a mould, and not an honest piece of modelling. To which he observed, "If this report be true, the figure has no right to be here. If false, it ought to be bought by the State, as it possesses exceptional qualities." To this, reply was made that it was a very difficult matter to decide whether a statue was a veritable piece of modelling, or a cast from a mould. M. Turquet then said: "There is a chief-of-police in Paris whose duty it is to solve greater mysteries than this, call him and ask him to open an inquest. It must, certainly, be easier to find out the truth about this figure than to detect counterfeit money." Notwithstanding M. Turquet's urgent interest in the matter nothing was done, and the statue returned to the sculptor's studio, at the close of the exhibition, and so far as the authorities of the State were concerned, under the ban of counterfeit.

In the meantime admiration for the statue was daily extending, especially among the younger artists, and much curiosity was awakened in regard to the sculptor. No one knew him. To the inquiries, Who is Rodin? Where did he come from? The only answers were: He is a Belgian. A good-for-nothing, and will be soon disposed of.

The first inquiry has remained to this day unaswered, and the second inquiry and the first answer were explained in the catalogue of the *Salon*. He was a Parisian, though he had been in Belgium for some years previous to his appearance at the *Salon* with his "Age of Brass." The last answer and the prophesied result has long since been reversed into: "He is one of the greatest artists that France has ever produced, and has been so ranked by the best art-judges in the world."

Auguste Rodin was born in the Panthéon quarter of Paris, in the month of November, 1840, of parents in very humble circumstances. At an early age he was sent to a little boarding-school at Beauvais, of which his uncle was the principal, and where he pursued only the simplest studies. Neither the master, the school nor the lessons attracted him, and he spent the most of his time in drawing fanciful designs, telling stories and reciting imaginary descriptions to his comrades.

The only exercise of the school which gave him pleasure was writing descriptions of subjects, given out by the master and read aloud by him to the school. "The Miser" was, on one occasion, allotted to Auguste. It was an easy and timely one; a fruitful example was near at hand, and the sous-loving pedagogue was served up by his young relative with all the picturesqueness of which he was capable. The master read the dissertation without recognizing its identity, and complimented its author upon the excellent manner in which he had acquitted himself. But the scholars were more acute than their teacher, to them he was set forth in his true colors, and they warmly extolled the correctness of their fellow-pupil's description.

As the resources of the boy's parents were not sufficient to pay the expenses of his schooling any longer, he was obliged to come home when he was fourteen years of age. The tendency of his nature toward art had begun, many years before, to show itself in various ways more or less common to all children of artistic temperament. With Auguste, his first attempt at making anything was curiously characteristic of his maturer years. When he was five years of age, his mother was one day frying some cakes, the dough of which was first rolled thin, like pie-crust, and then cut up into various fantastic forms, before it was dropped into the boiling fat. These fanciful forms attracted the boy's attention, and he asked his mother to let him make some *men*, to fry. She assented, and he immediately made them so large that there was not dough enough to make many of them, or room enough in the kettle to fry them, and his mother hastened to cut short the ambitious career of the dough-sculptor. Strange as it may appear, the incident was not without its amusement and significance, for, when the men were fried, the dough had been tortured by the fat into such curious and striking positions that it made both the mother and child laugh heartily, besides indelibly impressing upon the latter's memory his first sight of the extraordinary movements that even a dough man could be made to go through. The reader will see, in the course of this narrative, that size and movement of figure are fundamental facts in Rodin's nature.

At fourteen, Auguste had no other thought except to study art, and his parents, though not particularly interested in it, or in his disposition towards it, sent him to what is now known the world over as La Petite Ecole, at No. 5 Rue de l'Ecole de Médecine, a school famous for its age, having been founded in 1766, and for its distinguished scholars, among whom are Guillaume, Fremiet, Carpeaux, Aubé, Dalou, and Le Gros. His teacher was Le Coq de Boisbaudran, of whom and the school Rodin now speaks in the highest terms. "They had preserved," he says, "a little of the eighteenth century in the school — good antique models and excellent teachers."

In beginning to draw from plaster-cast ornaments, the boy drew only the more prominent portions, and, thinking that there ought to be some details to fill up the spaces, thus giving completer interest to his work, he put in such additional forms as he thought best. The master, curious to know why the model was not more faithfully copied, discovered that his pupil was near-sighted, a fact which no one had previously found out, although Auguste had often wondered why he did not see things as other boys did. From this time on he was obliged to wear glasses. He remained in this school for three years, drawing and modelling in the morning and evening, and drawing at the Louvre in the afternoon. At fifteen-and-a-half years he gained his first recompense, a bronze medal, for drawing from

[1] All rights reserved.

the cast, and at seventeen a first bronze medal for modelling, and a second-class silver medal for drawing from the antique.

Though Auguste had no master at the Louvre, he soon found a permanent one in his love for and study of the antique, which soon became the only one he has ever acknowledged.

Before he had completed the three years at the school it became necessary for him to earn his own bread, as well as to decide in what way he was to do so. The force of his instinct for art had now become an authority, whose correctness he did not dream of questioning, and he determined to follow art. His mother, with true parental anxiety, and sharing the prevailing intelligence of the time, cautioned him against entering upon a career for which he had no solid preparation, and his family no means of providing. "If you wish to be an artist," said she, "you must have not only money to pay your teachers through a long course of study, but to help you along afterwards, for art, my son, rarely brings generous returns to its followers." To which the audacious youth answered: "I don't want any professors. I can work it through alone." Such an expression of independence and of apparently overwhelming conceit, coming from any one save such a character as Rodin has proved himself to be, would give anything but a favorable impression of the art-nature of him who uttered it, or of his probable future success. Nothing that he could have said would have been more opposed to what is universally accepted as the proper state of mind for an art-student to be in, as well in regard to himself as to the respect due to artists and art-teachers. It was an astounding and revolutionary position to take, but the true one for Rodin. In that expression he summed up himself, without knowing it, as able to exemplify in the years to come one of the profoundest facts of individual art progress — the capacity to go alone; to begin, keep on, in spite of every obstacle and discouragement, to correct his own efforts, to make continual progress, and finally to walk above the clouds, firm, and without impediment or danger, and in debt to no human professional influence.

The question of bread had now to be considered, and Rodin settled it by finding employment among the makers of plaster ornaments and the workers in *papier-maché*. If this secured him a living, it also cut off to a large degree his hours of study. And now his independence and perseverance took a more immediate practical shape, for, to gain time to continue his studies, he arose very early in the morning, and studied until he went to his employer at eight o'clock; at noon he swallowed his dinner quickly to gain half an hour, and when the day was done he again began studies that extended far into the night. Sundays, especially, were his great days. This habit of continued work and study he persistently followed for the next twenty-four years.

He wanted very much to go to the Ecole des Beaux-Arts, and he entered upon his first competition for a place in drawing and modelling at the age of seventeen. Neither the first nor the two succeeding competitions in modelling were successful, though in drawing he was accepted, but did not enter the class. As each competition embraced a period of six months, it was a year and a half before he knew that the privileges of the school, in the department he wished to enter, were denied to him. It was a terrible disappointment and a deep humiliation. Like every young artist, he indulged in the prevailing belief that such men as Ingres, Perault, and Pradier were gods in art, to be loyally worshipped by every student. The course of study they had passed through he ardently wished to follow, and it was not until many years afterwards, when his work showed the freedom, boldness, and life of great individuality, untrammelled and unaffected by the influence of school or master, did he believe in the truth of the felicitations extended to him by Dalou, another eminent sculptor who had been through the school, that he was fortunate in escaping the kind of study taught in the school. "For," said Dalou, "it would have killed you."

But the time spent in the competitions was by no means lost. Before he had left La Petite Ecole he could draw from the living model almost as well as he ever could. He had unconsciously begun to develop his own way of seeing and working, and the competitions enabled him to compare what he could do with the work of the students who had succeeded in being accepted. He also saw, for the first time, that his drawing and modelling were different from that of other pupils, and that they watched him and his work with much curiosity and attention. Why his work was not as good as that of the more fortunate competitors he did not know, nor could he explain the difference between theirs and his own. He now remembers that his "things were well constructed, perhaps a little dry, but the bones were there."

Rodin soon found out that the difference between himself and other young artists was leading him into an unknown and dreary path, where he was destined to travel alone for the next twenty years deprived of all professional sympathy and companionship.

He also managed at this time to go to the evening drawing-school at the Gobelins manufactory of tapestry, and with especial satisfaction, because the model posed three hours at one time, whereas at the Government School the pose was for only two hours. Besides, he attended Barye's class at the Jardin des Plantes, and although he saw and got very little there apparently, he felt later on the result of what he had instinctively acquired. Of Barye, Rodin says: "He talked very little, and I saw nothing in him at that time." "But the three years at La Petite Ecole was the germinating period of my life, where my own nature planted itself on firm ground without let or hindrance; where the seeds of my subsequent development were sown; and where I received the only instruction in my life."

The work that Rodin was obliged to do for his employers was of the most menial description. He mixed plaster, cut off the mould-marks from plaster and *papier-maché* casts, performed the general duties of a scullion in such establishments, and made occasionally a simple ornament, for all of which he received the luxurious salary of forty cents a day. He hated his work and his employers, and they returned his sentiments by hating him and finding fault with everything that he did.

He continued to serve men of this kind for six years, passing through the most horrid moments of his life, and retaining the memory of such bitter experiences with them that to this day he will not speak some of their names. In his spare hours, however, he was himself, and enjoyed the pleasure of doing as he pleased. His little sleeping-room was also his studio — more the latter than the former — and there he modelled and drew from life to his heart's content. As soon as he could he got a hole somewhere else — a shed, cellar or stable, no matter how miserable — that he could more properly call his studio. He invariably attempted some figure larger than life as the principal object of his thought, but had always numberless sketches in various degrees of execution as a sort of momentary enjoyment. Being somewhat negligent, and without means either to care for or preserve these sketches and finished models in plaster, they dried up, fell to pieces, and went into the clay-tub, to continually appear again in other forms, and to follow the same round of resurrected destruction.

While Rodin occupied, in the Rue de la Reine Blanche, a stable as a studio, he began to make, and finished in about eighteen months, a mask which was destined to result in one of the most sculpturesque pieces of modelling of modern times, and which is now known as "The Broken Nose." It was made from a poor old man who picked up a precarious living in the neighborhood by doing odd jobs for any one who would employ him, and who went by the name of "Bèbè." Of the great merits of this mask, some observations will be made in another place and in connection with other of the sculptor's works; but, as the reader may have the same curiosity that the writer had, and ask why the sculptor should choose such a model, his answer is given in this place: "He had a fine head; belonged to a fine race — in form — no matter if he was brutalized. It was made as a piece of sculpture, solely, and without reference to character of model, as such. I called it 'The Broken Nose,' because the nose of the model was broken." And of its value to him, as a point attained and to be guided by, he further observes: "That mask determined all my future work. It is the first good piece of modelling I ever did. From that time I sought to look all around my work, to draw it well in every respect. I have kept that mask before my mind in everything I have done. I tried it on my first figure, 'The Bachante,' but did not succeed; I again tried it on 'The Age of Brass,' also without success, though it is a good figure. In fact, I have never succeeded in making a figure as good as 'The Broken Nose.'"

"The Bachante" was Rodin's first large figure, made about the same time as "The Broken Nose," and upon which he spent nearly three years. As he now remembers it, he says, that "in style of modelling it was like 'The Broken Nose,' and better than 'The Age of Brass.' Very firmly modelled — possibly a little cold." He thought it a good piece of work at the time, though every one who saw it was displeased. So solidly was the clay put together, so severely and endlessly was it modelled, that when it had dried and shrunken up to its smallest dimension, it retained its proportions in every particular. In making this figure the sculptor was more than ever powerfully influenced by the increasing domination of his feeling for pure sculpture — the question of lines, masses and effects; of *drawing* his model in the severest sense of the term. The subject, as such, occupied no place in his mind. It was, with him, then, and ever afterwards, the never-ending and all-imposing problem of *planes*. The sculptor speaks of "The Bachante" with a feeling of deep regret because he was not able to preserve it, and with sadness when he remembers the long hours of patient and suffering labor that the figure cost him.

Among Rodin's friends was a priest, named Aymar, the founder of a society called The Sainted Sacrament, and who had summed up the experiences of his life and observation, in the expression — which he enjoyed repeating — that "Life was an organized lie," and he wanted his bust made, in some respects, in accordance with this conclusion. Rodin gladly consented to make it as he saw his sitter, and the more willingly because it would enable him to earn a little extra money, and this meant a little more human comfort. After the bust was completed and several duplicates made, of reduced size, Aymar took the sudden fancy that the masses of hair on the sides and top of his bust suggested to him the "horns of the devil," and he would not accept it unless these troublesome reminders were reduced to a more human appearance. This the inflexible young sculptor would not do. The facts of Nature had more influence with him than the desire to please the fears of the superstitious priest. Besides, the head had a certain interest to Rodin. Aymar was a born Jesuit, his head and face gave no indication of its owner's age, and it had a character that the sculptor liked to study. But, the priest was a poor sitter, and in spite of all he could do, Rodin could get very little of the kind of modelling he had put in "The Broken Nose," though he caught the character of his sitter with force and

vigor. The result was that Aymar would not take the bust nor pay the sculptor for the time he had expended on it, nor the money he had paid out for the duplicates. The modelling of this bust taught the priest that there was one exception, at least, to his favorite expression. So much did Rodin need the money at this time, that the amount he had paid for reducing and duplicating this bust was a matter of serious importance to him, and caused him considerable subsequent privation.

The sculptor was now, 1862–3, working for an ornament-maker by the name of Bies, whose shop was in the same street with Rodin's studio, and although he never pleased his employer, he was slowly winning praise from his fellow-workmen as an adroit draughtsman. In the shop, as well as at home he was always drawing, and as frosted-windows were his peculiar delight, he regaled his comrades in cold weather with imaginary images that excited their wildest astonishment and extended his reputation with them, as a being they could not understand. But Bies, even with "The Broken Nose" before his eyes, could not see anything in his workman but a wilful maker of strange ornaments that he could not use.

Rodin was also making jewelry for a noted Paris manufacturer, Fanières, in the form of ear-rings and buckles, of the smallest possible dimensions. They were modelled in hard wax, and made with all the skill and exactness that he was able to put upon them; but they did not please Fanières. To better his condition Rodin made several ineffectual attempts. In 1863, there was in Paris a private art-club called by the high-sounding title of "The National Exhibition of Fine Arts," which was directed by M. Martinet, and included in its list of members, Ingres, Delacroix, Baudry, Carpeaux and nearly all the principal artists of the city. Hearing that Martinet was very friendly to young artists and much disposed to give them a word of encouragement, or do them an act of kindness, Rodin went to him to see if he could be made a member of the club. The director put the young aspirant through a kind of examination, and came to the conclusion that he was eligible. From time to time the club gave private exhibitions of the works of its members, preceded by a banquet, and Rodin brought up, on one of these occasions, as the sign manual to his right to sit down with the mighty men into whose presence he was now to enter, his bust of "Aymar." To his great comfort it was much admired, and he felt, for the first time in his life, that there was a ray of light not unwilling to fall upon his head. If he could only have courage to bring "The Broken Nose" to the next dinner!

But before that patiently awaited for event was to take place the club was dissolved. During his short membership he had seen face to face the great lights of French art, and been introduced to Dumas *père* and Théophile Gautier. Being a great admirer of Carpeaux, he ventured, timidly at one of the club meetings, to speak to him, and ask him if he would give him work and take him into his studio. To Rodin's great joy Carpeaux responded in the most cordial manner: "Certainly! Come when you please." It may be imagined that he did not wait long before presenting himself at the latter's studio, but, to his sad astonishment, Carpeaux received him coldly, almost brutally, and he left without any disposition to return at a more propitious moment.

One of Rodin's comrades was a native of Marseilles, and after completing his studies in Paris he returned to his native city and undertook the execution of a large amount of stonework, on public buildings, for the Government. Needing some skilled assistance he sent for Rodin, and the latter set out for the shores of the Mediterranean; taking in on his way the interesting cities of Arles, Vienne and Nismes. Glad enough to get out of Paris, visit places as enjoyable as the more famous ones of Italy, and earn his bread under circumstances which he anticipated would be more agreeable, he set to work with the liveliest enthusiasm; but it was a delusion of short duration. He interpreted the model, which he was reproducing in stone, very differently from the way that his comrade expected. He cut too much off in some places, and left too much on in others. In fact, he was not the kind of workman that his employer wanted, and so he was discharged. Not desiring to immediately return to Paris, he obtained work at his old trade, ornament-making. Neither did this last long, two or three weeks of an individual Parisian was enough for the warmer-blooded inhabitant of the Phœnecian settlement, and Rodin packed his bundle and turned his footsteps towards home. But he had no sooner arrived than he was asked to go to Strasbourg, by a manufacturer of church sculpture, or, what is known in the vocabulary of sculptors as a *marchand de bons dieux*, a class of men not held in good repute among artists for any reason, but for whom many young sculptors are obliged to work to get their living. This one had, however, a slight recommendation of superiority for Rodin, because he followed a Gothic style of sculpture, of which, in its purity, the latter is an enthusiastic lover. He remained in this city three months, and one day, while enjoying the festivities of a grand church celebration, when thousands of fair women and young girls were filling the streets with their beauty and pretty costumes, he saw a little head which pleased him so much that he went to his room and modelled in an hour or two "La Petite Alsacienne."

The six years before referred to were now coming to a close, and in all that time Rodin had received nothing but reproaches from his employers, and not a word of encouragement from those who had seen his busts, sketches and figures. The truth is, he had altogether too strong a nature and too much artistic intelligence to have any satisfactory relations with the class of men he was obliged to serve. He would not swerve a hair to please any one in his work. Instinctively he felt that Nature was the best guide and master, and he followed her with unchanging faithfulness and at whatever cost. It is also true that his genius as an artist was not of that sort to recommend him to ornament-makers or commercial sculptors. The kind of modelling he did was too robust for the petty requirements of such employers.

There was also in the Rue de la Reine Blanche, a photographer, named Aubry, who possessed a good deal of appreciation of art, especially as it concerned his own profession. He knew Rodin, felt kindly disposed towards him, and had the unique impression, among all of the sculptor's acquaintances, that the latter might possibly get something to do for a higher class of employer than those he had been working for. He, therefore, asked Rodin to go with him to see Carrier-Belleuse, the most extensive commercial sculptor in Paris. The result of the visit was, that Belleuse came to Rodin's studio, examined his work, particularly "The Broken Nose," and told him that he would give him employment. "I was very happy," says Rodin, "To go to Belleuse, because it took me away from an ornament-maker to one that made figures. I began to work for him in 1863, and remained until the breaking out of the Franco-German War; although, at first, I only worked in the afternoons, continuing with Fanières in the mornings."

T. H. BARTLETT.

[To be continued.]

THE LEAGUE EXHIBITION.[1]—II.

WE should forget one of the most satisfactory drawings in the exhibition if we passed over Mr. C. C. Haight's pen-and-ink sketch, No. 24, for a vestry, offices and schools, a subject in which notwithstanding its difficulty, he finds himself thoroughly at home. His sketch for a church, No. 164, is much less praiseworthy, either in design or drawing, but at its best Mr. Haight's work is quiet, well-studied and poetical, to a degree which few architects in this country surpass. For an illustration of sentimentalism, as opposed to real sentiment like Mr. Haight's, we could hardly have anything better than the works of Mr. A. Page Brown, which are shown in different places on the walls. Mr. Brown appears to be a conscientious person, who studies architecture by reading what some one else thinks about it, instead of doing any thinking of his own, and who has just had his mind stuffed with the rhapsodies of the people who admire Greek architecture on account of its "intellectual coldness and purity," their notions on the subject being derived from the present aspect of Greek temples, which is about as much like the harlequin gorgeousness which their builders bestowed upon them as the grin of a mummy is like the smile of a Theban princess. Being, however, for the moment convinced that coldness and purity are the correct thing, Mr. Brown can think of nothing better, when he is requested to design a tomb, than to present a bird's-eye view of a little Greek temple on a big marble platform. As this would, under ordinary circumstances, look merely like a small school-house from the rural districts, he has had the happy idea of differentiating it from a school-house by presenting it as it would appear to one hovering in the air over it, with a wealth of hills and woods and other things in the distance. As district school-houses are rarely observed from a position in the air above them, whereas the mind's eye is quite accustomed to soaring over Greece, the classic illusion is happily preserved, and is cleverly heightened by making the landscape generally purple, it being well known that Grecian topography presents that color to sentimentalists.

In another effort, No. 172, Mr. Brown has, let us say, assimilated the Caryatid portico of the Erechtheum into a design for a mau-

[1] Continued from page 17, No. 681.

soleum; that is, he has not copied it so exactly that the imitation is indistinguishable from the prototype, since we see marks of originality in the addition of wings to the caryatides, and in leaving out the frieze from the entablature, making it consist of a dentilled cornice, placed directly on a huge three-faced architrave. We cannot say that either of these innovations appears to us an improvement, and are not consoled by finding the name of Mr. St. Gaudens, imperfectly spelt, associated with that of Mr. Brown in the legend on the drawing. When Mr. Brown gets out of the Grecian vein, as in his sketches for country houses, we find him much more agreeable, as is usually the case with people who mistake archæology for an art.

The bird's-eye view seems to be acquiring an undeserved popularity among sketchers. In No. 34 we find an etching of Milan Cathedral, by Mr. Otto H. Bacher, which would be very creditable, if the point-of-sight had not been taken from about the level of the third story windows of the houses on the opposite side of the Piazza. It is true that the photographs of the cathedral are often taken from this point, to avoid the convergence of the vertical lines caused by tilting upward a cheap camera, but the result is that the building looks in the picture like a small model, set down in a hole. Very probably Mr. Bacher copied his etching from such a photograph, but it would have been worth while, before spending so much labor on it, to have translated the perspective, so that the building should appear as high above the eye as it really does to a person standing on the ground in front of it, instead of destroying the dignity of the picture by showing the object as it would appear to a giant fifty feet high. In another, but less successful etching of the Church of the Holy Sepulchre, at Jerusalem, Mr. Bacher exhibits the same fancy for belittling his subject by magnifying his spectator, which we hope a careful study of Piranesi, Bourgerel, Prout, Haig and the other first-rate engravers of architectural subjects will induce him to correct in time.

There may, perhaps, be a certain advantage in considering the sketches of old work, as distinguished from the modern designs, by themselves, for in no department of the exhibition is there more variety, and in no department, perhaps, do we find works of such merit. At the very head we must certainly place Mr. F. H. Bacon's "Sketches in Greece and Asia Minor," No. 101. These are just a little stronger and better than the ones previously exhibited, and seem to us the finest pen-and-ink architectural sketches ever made. In saying this we remember perfectly the melting beauty of Mr. Raffles Davison's best work, and it is quite possible that Mr. Bacon would have failed in rendering Davison's subjects, but fortune willed that Mr. Bacon's quiet precision of eye and hand should be exercised on the brilliantly lighted but barren landscape of the East, rather than on soft English views, and the result is greatly to the advantage of the American sketcher. Next to Mr. Bacon, leaving out of consideration Mr. Pennell's work, which has a different object, and should hardly be considered among the sketches, and Mr. Kirby's drawings, which are rather works of imagination than records of fact, we should put a group of three sketchers, all of them uneven, but all very good when at their best — Mr. Arthur Rotch, Mr. A. W. Brunner and Mr. Schweinfurth, adding perhaps Mr. Schladermundt.

Mr. Rotch's color drawing of the Church of San Pablo, at Seville, is quite a model of an architect's water-color sketch. Close after these gentlemen, and a long way in front of the people who, like some, whose names we will not mention, make splashy caricatures of buildings, which shriek from the walls for us to admire them, come the conscientious students, like Mr. T. H. Randall, whose frame, No. 57, of Italian sketches in color, is so earnest and true that we easily forgive a little crudeness in our gratitude to the artist for allowing us to think of his subject instead of him.

Returning from Spain and Venice for a little while to the nineteenth century of American architecture, we have a few exceptions to the rule of creditable, but not remarkable designs and drawings, which should be noticed. The most curious sketch in the room is perhaps one by Mr. Sydney V. Stratton, No. 77, of a house at Natchez, executed in pastel. Now, pastel has its uses, but we feel ourselves compelled to say that the rendering of hasty architectural sketches does not appear to be one of them, and even so agreeable a design as Mr. Stratton's fails to charm when set in a coarse landscape of emerald green with two rectangular patches of vermilion in the foreground. This is not the only illustration in the room of the fact that color, in architectural drawings, is a dangerous thing, and that those who are not sure of using it well had better let it alone. As particularly good examples to enforce this moral, we might mention Nos. 87 and 180. The former is a water-color drawing of Mr. Arthur Little's room in Boston, by Mr. G. P. Fernald. It is faithful, with a faithfulness that would do credit to Old Dog Tray, and it need hardly be said that the detail of the finish and furniture in the room of so accomplished an architect is all interesting, but the very completeness of the rendering takes away from its charm, and one cannot help criticising the contrast of color between the sofa and the big chair, and doubting whether so much brown in the oak wainscot ought not to have been balanced by stronger decoration on the ceiling, and so on; and the net result of the inspection is one of mild discontent. No. 180, on the other hand, which is a mere outline sketch, in black-and-white, of "An Old Colonial Hall," by Mr. Frank E. Wallis, attracts us at once.

The design is beautiful, both in arrangement and detail, though perhaps, no more so than Mr. Little's work, but the firm simplicity of the drawing, showing with precision what it wishes to insist upon, and leaving us to infer the rest from what we see, without distracting us by irrelevant accessories, certainly leaves most persons with the impression that it represents much the more successful design of the two. The late Mr. Richardson, who was a keen observer of the conditions of success or failure in competitions, was always prejudiced against colored drawings. Until his success in the Trinity Church contest, which he won with drawings very slightly tinted, he was accustomed to say that he had never gained a competition to which he sent colored drawings, and never lost one to which he sent a perspective in pen-and-ink. According to his view, it was a mistake to render a drawing so fully as to leave nothing for the imagination of the spectator to supply. Even with coloring so good as to be in no danger of offending any one, he believed that the average jury, even though composed in part of experts, was disposed to fear that a mild deception was being practised on them, and that the building in execution "would not look so handsome as the picture;" while a pen-and-ink drawing impressed most persons as an inadequate medium for representing the beauties of the design, and jurymen, in contemplating it, would, as he found, say to each other. "If a mere sketch looks so well, what must the actual building be!"

It would, however, be unfortunate to carry this principle too far. While Mr. Richardson's maxims would apply with full force to drawings like an extraordinary one rendered in color by Mr. Lautrup for Messrs. Burnham & Root, representing a bank building, in which we find the windows represented as glazed in lead-work on a scale so colossal that the disappointed depositors, who are shown gathering in groups about the doorway, could easily crawl through the space made by the removal of a single quarry, it is certain that in Mr. Peabody's lovely little color sketches, showing a house at Brookline, a church at Weston, Mass., and three studies for a church at Pittsfield, the design gains much from the rendering. Perhaps as sketches the church drawings are the most effective, but the study for the house — Mr. White's, is so full of the sweetest charm of peace and home that we are very much inclined to rank it, slight as it is, as the best specimen of architectural expression in the exhibition, and one of the best ever shown in New York.

With these, as shining examples of that rare and precious quality, architectural expression, should be mentioned Mr. H. P. Kirby's drawings, of which a dozen or so are collected on a stand near the door. Our readers know our opinion of Mr. Kirby's compositions, so we need say no more than that in some of those here shown he is at his very best. A few are sketches from old French towns, in which he seems to revel in picturesqueness and contrasts of light and shade, while the others are mostly compositions of his own, more picturesque even than French nature, and delicious in their indications of detail. Why it is that we do not see some of Mr. Kirby's conceptions carried out, we cannot imagine. There seems to be nothing about his "Court-house Tower," or his "Country Tavern," which is not perfectly adapted to modern requirements, and either of them has architectural novelty and beauty enough to endow a whole American town with those qualities, yet they appear to remain unfruitful. We cannot say quite as much for his sketches for a Moorish "Casino" as for the French Gothic and Transition work, but in the latter, as well as in compositions too simple to be of any style, and depending purely on picturesqueness, his sketches, at least, are unrivalled. To have them lost, even as sketches, to the architectural world would be a serious misfortune and we trust that, before it is too late, some one will see to it that a complete collection is made of the works of this American Prout.

THE ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

ENTRANCE TO THE HOUSE OF C. L. TIFFANY, ESQ., NEW YORK, N. Y. MESSRS. McKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Helio-chrome, issued only with the Imperial Edition.]

GOTHIC SPIRES AND TOWERS, PLATES 37 AND 38. — CANTERBURY CATHEDRAL; ST. MARY MAGDALENE, NEWARK, ENGLAND.

[Issued only with the Imperial Edition.]

THE AGE OF FRANCIS I, PLATE 1. — CHAPEL OF ST. HUBERT, AMBOISE.

[Issued only with the Imperial Edition.]

"THE AGE OF BRASS"; "THE BROKEN NOSE"; "PERE AYMER." M. AUGUSTE RODIN, SCULPTOR.

See article elsewhere in this issue.

GRAND ALTAR IN THE CHURCH OF GUADALUPE, MEXICO.

HOUSE OF FRANK CAMPBELL, ESQ., YORK, PA. MR. J. A. DEMPWOLF, ARCHITECT, YORK, PA.

BUILDING FOR THE BELL TELEPHONE COMPANY OF MISSOURI, ST. LOUIS, MO. MESSRS. SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS, BOSTON, MASS.

UPPER CANADA COLLEGE, TORONTO, CANADA. MR. GEORGE F. DURAND, ARCHITECT, LONDON, ONTARIO.

A GENERAL PROTEST AGAINST IMPROPER CONDITIONS OF COMPETITION.

[ARCHITECTS in every part of the country are invited to send us their authorization to add their names to the protest. — EDS.]

THE fact that the Committee on Finance, to whom the following resolution was referred by the Massachusetts Senate, reported on Monday last that it "ought to pass" may be taken by the profession as a distinct encouragement and should induce all architects to uphold each others' hands in all similar cases.

The resolution prepared by Mr. Kittredge of Boston, from the Committee on the State-House, which will probably now be passed before this issue reaches our readers is, as follows:

Resolved, That there be allowed and paid out of the Treasury of the Commonwealth a sum not exceeding $8,000, to be expended under the direction of the Governor and Council, to enable them to devise and report to the General Court in the month of March, 1889, a general plan for the use, occupancy and improvement of any land acquired or taken for State purposes, including the present State-House grounds, and for the alteration or enlargement of any existing buildings or the erection of any new buildings thereon, it being hereby provided that the architects presenting the plan which shall be adopted by the Legislature or by its authority shall be employed to superintend the construction of the building designed in such plan, on terms to be agreed upon by the Governor and Council; and it being further provided that $500 of the above named sum may be expended under the direction of the Governor and Council to enable them to employ experts to advise them in deciding upon the merits of plans which may be submitted.

Resolved, That chapter 92, Resolves of 1888, is hereby repealed, provided that any bills contracted under the authority of said resolve may be paid out of the amount authorized herein.

BOSTON, MASS., December 18, 1888.

THE Commonwealth of Massachusetts has, by its Commissioners, advertised for designs for the State-House extension, said designs to be furnished in open competition. The conditions of the competition, as announced, have evidently been framed without due regard to the best custom in the conduct of such matters, the sole end and aim of which should be to secure to the State the best service by making sure that "the best men shall take part; that they shall be encouraged to do their best; that the best they offer shall be selected; and that the author of the successful design shall be employed as architect, provided the building is built and he is competent."

The conditions announced are faulty —

First. In that they are not drawn up in accordance with the best custom, and no assurance is given that an expert adviser will be employed to aid the Commission in their choice.

Second. That no assurance is given that the successful competitor will be employed, but, on the contrary, it is distinctly stated that all premiated competitors are to relinquish all ownership in their plans to the State, without any further claim to compensation or employment.

Third. Even if the first prize in the competition were as it should be, the execution of the building, the actual prizes offered would still be entirely insufficient compensation to the authors of the drawings placed second and third.

For the above reasons, we, the undersigned architects, citizens of the State of Massachusetts [and elsewhere], protest against this form of competition, which, in our opinion, is not for the best interests of the State or of our profession, and we therefore decline to enter it:

BOSTON, MASS.
Cabot, Everett & Mead.
Wheelwright & Haven.
Joseph R. Richards.
John A. Fox.
Geo. H. Young.
E. A. P. Newcomb.
Longfellow, Alden & Harlow.
Edwin J. Lewis.
Andrews & Jaques.
H. Langford Warren.
Walker & Best.
Wm. Rotch Ware.
Hartwell & Richardson.
Cummings & Sears.
T. M. Clark.
Allen & Kenway.
Rand & Taylor.
Thos. O'Grady, Jr.

BOSTON, MASS.
Sturgis & Cabot.
Shepley, Rutan & Coolidge.
Rotch & Tilden.
Snell & Gregerson.
Shaw & Hunnewell.
Wm. G. Preston.
L. Weissbein.
Franz E. Zerrahn.
Carl Fehmer.
Arthur Little.
Peabody & Stearns.
Winslow & Wetherell.
W. H. McGinty.
W. M. Bacon.
W. P. Richards.
Daniel Appleton.
H. M. Stephenson,
W. R. Emerson,

BOSTON, MASS.
Wm. Whitney Lewis.
J. Merrill Brown.
Chamberlin & Whidden.
Wm. D. Austin.
F. W. Chandler.
J. P. Putnam.

FITCHBURG, MASS.
H. M. Francis.

HOLYOKE, MASS.
E. A. Ellsworth.
H. Walther.
Jas. A. Clough.
Geo. P. B. Alderman.
Cain & Kilburn.
Henry H. Gridley.
W. E. Fitch, C. E.
D. H. & A. B. Tower.
T. W. Mann.

LAWRENCE, MASS.
Chas. T. Emerson.

LOWELL, MASS.
F. W. Stickney.
Merrill & Cutler.

LYNN, MASS.
Wheeler & Northend.
Call & Varney.
H. W. Rogers.

PITTSFIELD, MASS.
H. N. Wilson.

SALEM, MASS.
W. B. Smith.

SPRINGFIELD, MASS.
Gardner, Pyne & Gardner.
Richmond & Seabury.
Jason Perkins.
F. S. Newman.
J. M. Currier.

WORCESTER, MASS.
Stephen C. Earl.
E. Boyden & Son.
Fuller & Delano.
A. P. Cutting.
J. B. Woodworth.

ANNISTON, ALA.
Chisholm & Green.

LONDON, ONTARIO, CAN.
G. F. Durand.

MONTREAL, CAN.
Taylor & Gordon.
J. Venne.

NAPANEE, CANADA.
F. Bartlett.

TORONTO, CANADA.
W. R. Gregg.
Strickland & Symons.
Langley & Burke.

DENVER, COLO.
W. A. Marean.

MONTE VISTA, COLO.
A. Fehmer.

BIRMINGHAM, CONN.
Alderman & Lee.

BRIDGEPORT, CONN.
C. T. Beardsley, Jr.
Warren B. Briggs.

HARTFORD, CONN.
M. P. Hapgood.
W. C. Brocklesby.

NEW HAVEN, CONN.
L. W. Robinson.
R. G. Russell.

WATERBURY, CONN.
R. W. Hill.

WASHINGTON, D. C.
W. J. Marsh.
H. T. E. Wendell.
R. I. Fleming.
J. L. Smithmeyer.

MACON, GA.
P. E. Dennis.

SAVANNAH, GA.
J. J. Nevitt.

CHICAGO, ILL.
J. E. O. Pridmore.
W. D. Cowles.
J. N. Tilton.
Burnham & Root.
F. L. Lively.
J. J. Egan.
O. J. Pierce.
Flanders & Zimmerman.
W. W. Boyington.
O. H. Matz.
H. I. Cobb.
F. W. Perkins.
Beman & Parmenter.
A. M. F. Holton.
D. Adler.

CHICAGO, ILL.
J. L. Silsbee.
F. B. Townsend.
R. A. Denell.

PORTLAND, ME.
Stevens & Cobb.

BALTIMORE, MD.
T. B. Ghequier.
R. F. J. Johnson.
Wyatt & Nolting.

CEDAR RAPIDS, MICH.
Josselyn & Taylor.

DETROIT, MICH.
A. B. Crane.

KANSAS CITY, MO.
Willis Polk.
H. B. Pridden.
S. E. Chamberlin.
A. Van Brunt.

ST. LOUIS, MO.
C. E. Illsley.
Eames & Young.
A. F. Rosenheim.
E. Jungenfeld & Co.

ST. PAUL, MINN.
Gilbert & Taylor.

YORK, NEB.
N. A. Sherman.

EAST ORANGE, N. J.
S. W. Whittemore.

NEWARK, N. J.
P. G. Botticher.

PATERSON, N. J.
C. Edwards.

RAMSEYS, N. J.
E. R. Storm.

ALBANY, N. Y.
Fuller & Wheeler.
F. H. Janes.

AUBURN, N. Y.
M. D. Makepeace.

BROOKLYN, N. Y.
C. F. Eisenach.
M. J. Morrill.
H. M. Davis.
F. J. Berlenbach, Jr.

BUFFALO, N. Y.
Marling & Burdett.
R. A. & L. Bethune.
Green & Wicks.
N. G. Orr.
W. W. Carlin.

ELMIRA, N. Y.
Pierce & Dockstader.

JAMESTOWN, N. Y.
F. J. Untersee.

OGDENSBURG, N. Y.
J. P. Johnston.

NEW YORK, N. Y.
W. B. Bigelow.
Fowler & Hough.
G. Edw. Harding & Co.
Rossiter & Wright.
W. A. Potter.
A. J. Bloor.
J. R. Hinchman.
C. P. Karr.
G. E. Harney.
J. C. Cady & Co.
G. M. Walgrove.
C. H. Israels.
H. M. Congdon.
Withers & Dickson.
Babb, Cook & Willard.
H. H. Holly & Jelliff.
H. D. Hooker.
O. P. Hatfield.
G. M. Huss.
H. O. Avery.
C. W. & A. A. Stoughton.
W. H. Beers.
H. Edwards-Ficken.

NEW YORK, N. Y.
H. R. Marshall.
A. H. Thorp.
L. B. Valk.
H. F. Kilburn.
J. A. Hamilton.
W. H. Mersereau.
W. Kuhles.
Carrère & Hastings.
E. T. Littell.
E. H. Kendall.
W. B. Tuthill.
Cleverdon & Putzel.
H. J. Hardenbergh.
J. Stroud.
R. C. Jones.
A. F. D'Oench.
W. S. Knowles.
R. M. Hunt.

ROCHESTER, N. Y.
J. R. Church.
Thomas Nolan.
J. G. Cutler.
O. K. Foote.

SAYVILLE, N. Y.
I. H. Green, Jr.

UTICA, N. Y.
W. H. Symonds.
F. H. Gouge.

CINCINNATI, O.
E. Anderson.
J. W. McLaughlin.

CLEVELAND, O.
L. T. Scofield.
E. Schwabe.

COLUMBIA, PA.
P. E. Gouger.

ERIE, PA.
D. K. Dean & Son.

PHILADELPHIA, PA.
Smith & Pritchett.
G. C. Mason, Jr.
Moses & King.
F. M. Day.
B. Linfoot.
J. M. Wilson.
H. A. Macomb.
Cope & Stewardson.
Hazlehurst & Huckel.
J. J. Deery.
A. J. Boyden.
J. C. Worthington.
C. M. Burns.
T. R. Williamson.

PITTSBURGH, PA.
W. S. Fraser.

SCRANTON, PA.
E. L. Walter.

YORK, PA.
J. A. Dempwolf.

WILKES-BARRE, PA.
Kipp & Podmore.

PROVIDENCE, R. I.
Stone, Carpenter & Willson.
Gould & Angell.
E. I. Nickerson.
L. P. Longworthy.

WOONSOCKET, R. I.
W. Kent.

EDGEFIELD JUNCTION, TENN.
R. Sharp.

KNOXVILLE, TENN.
Baumann Bros.
Beaver & Hoffmeister.

MEMPHIS, TENN.
A. B. Cook.

RICHMOND, VA.
M. J. Dimmock.

MILWAUKEE, WIS.
G. B. Ferry.

THE NUMBER OF ILLITERATES. — A census of the illiterates in the various countries of the world, recently published in the *Statistische Monatsschrift* places the three Slavic States of Roumania, Servia, and Russia at the head of the list, with about 80 per cent of the population unable to read and write. Of the Latin-speaking races, Spain heads the list with 63 per cent, followed by Italy with 48 per cent, France and Belgium having about 15 per cent. The illiterates in Hungary number 43 per cent, in Austria 39, and in Ireland 21. In England they are 13 per cent, in Holland 10 per cent, in the United States (white population) 8 per cent, and in Scotland 7 per cent. Among the purely Teutonic States there is a marked reduction in the percentage of illiterates. The highest is in Switzerland, 2.5; in the whole German Empire it is but 1 per cent; while in Sweden, Denmark, Bavaria, Baden, and Würtemberg there is practically no one who cannot read and write.

ARCHÆOLOGICAL CAMPING IN ARIZONA.[1]—III.

Vera Cruz, Mexico.

AN archæological camp proves to be a very busy place, although it seems a very region of *dolce far niente*, under the serene sky, on the wide and silent sunlit plains basking in the sunlight. The landscape is a picture of peace. All nature is enjoying a delicious repose. No hum of insects is heard in the bright and quiet air. The ground is brown and bare; even the withered herbs have nearly all crumbled into dust and been scattered in the wind, leaving the brown plain bare and baked. The warm sun of the days cannot yet call forth the plants from the sleep induced by the cold of the night-time; only the brave blades of the grain have the strength to thrust themselves up, little by little, day after day, farther and farther into the air, until March sees them undulating like sea-waves over the broad fields, their bloom showing foam-like and creamy green, while mid-April finds them golden and ready for the harvest. The brooding calm seems emphasized by the few glimpses of animation, the few sounds, that at intervals strike the eye or greet the ear; the scurrying rabbits, the timid little cotton-tails and the great jack-rabbit with his enormous ears and astonishingly long leaps; those pretty creatures, the "*juancitos*," which word means "Johnnies," rat-like and squirrel-like, with long tails terminating in a tuft of hair like those of shaven poodles, and wee ground-squirrels dodging into their holes with which the ground is everywhere burrowed into a honeycomb that keeps horsemen warily on the lookout when dashing across country; that humorous fellow, the coyote, skulking among the brush or sauntering indifferently along a few dozen feet away when he seems to know you are not armed, making night anything but musical with his yelpings; and the birds that hover around, some with exquisite musical notes, and the numerous flocks of quail with their queer crests perked forward and looking like some prize carried in their bills, evidently aware that their meat is as dry and tasteless as sawdust, for they run across the roads as indifferently as barnyard fowl and rarely take wing.

But while Nature and her children are taking their ease, Camp Hemenway is well occupied. The laborers have early gone afield to carry out the instructions that Mr. Cushing has dictated to his secretary the night before; the two doctors are out with them looking after the skeletons of the Ancients; Mr. Hodge is at his desk in his neatly-kept tent writing out his notes or busy with the accounts; Don Carlos is looking after practical affairs, turning out some needed carpentry at the bench under one of the mesquite trees, or is on the way to Phœnix for supplies, or is at work on his surveys, while Mr. Cushing is out keeping the run of the work on the excavations, photographing the finds *in situ*, elated over some interesting discovery and drawing inferences therefrom in the light of his manifold ethnological experiences, ranging the plains in the saddle or on the buckboard with eyes alert for the slightest traces of ancient landmarks, or in his tent finding comparisons among his books or among his old notes that throw new light on fresh observations, or writing or dictating the daily reports that preserve accurate records of the work as it progresses. All this in the intervals left him for work by the delicate condition of his health, and often accomplished only by dominating over keen pain by the mastery of a strong will.

The ladies also are by no means idle, even a camp providing abundant domestic cares for Mrs. Cushing, while Miss Magill spends the day at her easel over the beautiful water-color drawings which she is making of all the important articles in the collections, with conscientious accuracy, and to scale. Of the pottery, for instance, she makes two or more drawings of each specimen, one from the side and the other from above or below, or perhaps both, while in the case of the decorated ware she makes a drawing of each different motive in the ornamentation, affording many beautiful designs and hints for decoration which could well be availed of by architects and painters. This idea of giving in a painted band the motives of pottery design, adopted in the reports of the Bureau of Ethnology, originated, I believe, with Mr. Cushing and it is extremely useful in affording an understanding of the decoration, which, when seen on the vessel appears often so complicated as to be difficult to elucidate, while, by presenting the motive alone it is made clear.

Another busy man in camp is the cook, who has a difficult task in suiting the appetites of so many, some of whom have been made dyspeptic by the exigencies of desert fare. Cooks in camp appear to maintain the reputation of the craft for inconstancy and for perversity of temper, and the incumbency of the office often changes. Various nationalities have been tried: Chinamen, Mexicans, Americans, Irishmen, Germans, Frenchmen. The Chinamen bring the economy that they are accustomed to exercise in their own affairs into that of their masters; it seems a second nature to them, and they cannot help it. This is an admirable trait when not carried too far, as it is when they economize so as to half starve those dependent upon them. In his first months here Mr. Cushing had with him two of his Zuñi friends. The cook at that time was a Chinaman, and he held that men who were idle did not require so much food as those who worked, and he applied the idea very rigidly to these two Zuñis. One of them rarely condescended to labor, while the other often went to the excavations and did good service with pick or shovel, receiving pay accordingly. To the worker Mr. Chinaman allowed two cups of coffee — a beverage of which the Indians are very fond — but the other was sternly denied a second cup, and when one evening he contrived to help himself to a second while the cook's attention was momentarily diverted, it was instantly snatched from his hand. The cook was likewise chary of pie to the non-worker.

When I first came to the camp a Mexican was temporarily in charge of culinary affairs, during a hiatus occasioned by the resignation of a much-esteemed American *chef* in consequence of a spree, and the fare was something unspeakable in the way in which good material was converted into various materials of indigestibility. A gaunt and pale young man next appeared on the scene, speaking one of the vernaculars prevailing south of Mason & Dixon's line, fond of talking of "the fine old family" to which he belonged, and expressing a sense of the degradation of the estate to which he had fallen. If he had had more respect for his calling and talked less about his antecedents perhaps his claim to gentlemanly rank would not have had to be so volubly expressed in order to obtain recognition — for I have had the fortune to encounter genuine gentlemen in nearly every walk of life. Poore's specialty was cakes and puddings, imposing in aspect and formidable in quantity — of their quality perhaps it is sufficient to say that our failure to eat any of them did not seem to discourage him in the least, and the same prodigious piles — that is, the same in appearance, though unfortunately for the resources in eggs and sugar, fresh-made each day — were triumphantly borne before us to cap the climax of each meal though left undiminished at its end. Perhaps the Mexicans disposed of them at their table, which accounts for the aversion they manifested towards the cook before he finally vanished in the cloud of the customary "tear" that usually serves to mark changes of culinary administration in this part of the world. Edward the Alsatian next appeared on the scene, and he proved a treasure; he took a pride in his work and knew how to give nice little attractive touches to his dishes and impart an appetizing flavor to his preparations. He was cheery and diligent, and far into the evening he would sing the German folk-songs of his fatherland over his work; pleasant to hear, for their melody's sake, even though he did invariably maintain the pitch a semi-tone below the key! Shortly after he came to us we had a little *fiesta* in honor of the birthday of Don Carlos, and Edward elaborated a magnificent cake for the occasion; with icing ornamented in the height of the confectioner's art. But alas, when cut it was like lead within! When Edward came in shortly after he saw a piece lying on a plate, and the transitions from astonishment, through disgust, to humiliation and grief that passed over his face would have furnished profitable study for a comedian. "Cheezus G-h-r-i-s-t!" he muttered slowly, inspecting it critically and then tasting it. We sympathetically assured him that the cake was good, the icing was fine enough to assure that, any way; but he refused to be consoled; he knew what cake was and when he said it was bad, it was no use to tell him it was good — he had forgotten the yeast-powder. "I mague you a gake domorrow!" he declared, and the next noon he set his success before us in justified triumph. But the spoiling of that cake gave us enough entertainment to atone for the mishap. Edward's weak point was his coffee, which was strange, considering the part of the world from which he came: as a guest expressed it, he was "coffee-blind." It happened that neither Mr. Cushing nor the ladies were coffee-drinkers, and so the rest of us suffered in silence rather than reveal the flaw in the one who gave such thorough satisfaction to them, until we received the delightful visit from the afore-mentioned guest, to whom a good cup of coffee was the main dependence at breakfast, and he frankly declared that it was the most abominable stuff it was ever his fortune to taste; a declaration which was concurred in by the rest of the table with astonishingly hearty unanimity. Whereupon Mr. Cushing, who included a good knowledge of cooking among his many accomplishments, proceeded to give Edward a course of instruction in coffee-making, with some degree of success, for the time being.

Rafael Castro, the handsome, stalwart youth who takes care of the animals and attends to the many wants of the camp, is a favorite with us all, like his brother Ramon. He is faithful, diligent, and a natural gentleman. Watering and feeding the animals, hauling water and wood, driving into town after the mail, and doing the daily chores of the camp, time does not hang heavily on his hands. In the morning the animals are set loose, and they repair in a herd to the neighboring acequia for water, Rafael riding bare-back on Jack, one of the largest of the mules. The other mules lie down to indulge in a roll the first thing, kicking the dust up in clouds. Jack, a solemn-faced creature, deliberately follows their example, Rafael stepping from his back as he nears the ground, and patiently holding the halter until the exercise is finished. "Get up, Jack!" he finally

[1] Continued from page 16, No. 681.

exclaims out of his limited English vocabulary. But Jack has not yet got enough, and proceeds to take another roll, while Rafael smiles indulgently. Rafael's English is limited to his remarks to the animals, and I observe that the Mexicans hereabouts seem to think it the proper thing to use our mother-tongue in addressing horses and mules. Possibly they learn it from the American teamsters, or perhaps it is because the horses and mules are American-bred, and understand the phrases better! Does not the proverb say that Spanish is the language of heaven, Italian of love, French of social intercourse, while English was designed to be spoken to animals!

Mules are devoted admirers of horses, and Mr. Cushing's herd is ardently attached to Douglas; oftentimes the latter will set them a bad example when returning from water, and, feeling the need of exercise, go galloping in splendid style off to our neighbor's barley-field, whose greenness appeals appetizingly to his eyes. The others feel themselves privileged to follow, and there is a grand scampering and flourishing of heels, until, after great efforts on the part of Rafael, they are finally driven back to camp, each marching to his or her respective place at the crib with the sober decorum of beings who never knew what a frolic was. The mules are a fine-looking lot, and it is interesting to note their individual peculiarities, manifest when together in camp, or when driven or ridden, in sympathies and antipathies towards each other — the mutual friendship of one pair, the stolid indifference of another; the strong affection existing between Dr. ten Kate's horse Billy, *alias* Café, and the skittish and sturdy little mule Zuñi, who are near neighbors at the crib, and stand and caress each other by the hour; the nervousness and feminine eccentricities of handsome Mary; Bob's occasional outbursts of irritability; the incurable laziness of great Pete and Barney; the alert responsiveness of Chub and Thistle; the sullenness of Joe, and the omniverous appetite of Jack, who has a fondness for bacon and for mutton stewed with Chili-peppers.

The skeletons exhumed at Los Muertos are so badly decayed that it proves next to impossible to preserve them, and so Mr. Cushing decides to establish a side-camp at Las Acequias, where the more gravelly soil affords better conditions for sound bones. True, no skeletons had yet been found there, for there had been no excavations on that site, and the two doctors, who are to have charge of the operations, express some doubt as to the result. "You shall find skeletons in abundance, and splendid ones at that," said Mr. Cushing, and the result proves the justification of his prediction.

The new camp is pitched in a pretty little hollow, amid a clump of old mesquite trees. The hollow is that of one of the ancient reservoirs, and the moisture retained there makes it a favorable place for the luxuriant growth of the mesquite trees, which always flourish particularly well in such a spot. Three tents are brought from the other camp, and gleam brightly amidst the trees: a small wall-tent for the Doctors, a larger one for the Mexican laborers, the main force being transferred to the new field here, and the Sibley has been brought for the storage of the collections. One of the Mexicans has assumed the duties of cook, and the kitchen is established between the first two tents in the open air, the apparatus consisting of a "tarantula," or great iron frame supported on legs, and placed over the fire for the support of the various kettles, frying-pans, etc., and a crib is built for the animals needed for service here. The name conferred on this ancient city, Las Acequias, comes from the great irrigating-canals that spread out, fan-like, among the ruins, and reach away to various parts of the plain to supply the other cities of the group. Their course may still be plainly traced here, and one of them runs close by the camp, connecting with the reservoir in which it is situated. It must have been an enormous labor to excavate them in those times, with nothing but crude stone implements and baskets for transportation of the earth. The present Tempe Canal follows the course of one of these old ditches very nearly for some distance from the river, and where another passed through a hard bed of natural cement. The Mormons of the neighboring settlement in constructing their canal adopted the old route, thus saving an expenditure of between $10,000 and $20,000.

In a short time the plain is dotted with the yellow heaps of earth thrown up by the excavations, and rich archæological treasures are found in the shape of skeletons, pottery, stone-implements, and other articles. The two Doctors are found grubbing in the pits, industriously at work over the skeletons, over whose anatomical characteristics their enthusiasm is aroused to a high pitch. They are intent on securing and saving every bone, and are regardless of personal discomfort, not only their clothes being covered with the dust, but their faces begrimed and their hair and beards thoroughly powdered, making them look like some strange burrowing animals. The result of their painstaking is one of the finest and most complete collections of ancient skeletons ever brought together, and the consequent discovery of certain anatomical characteristics that promise to be of high importance in the determination of racial distinctions.

Las Acequias, like the other ancient cities, consists of groups of large houses, corresponding to our city blocks of dwellings, each of which was inhabited by a single clan. These are numbered in the course of the excavations, and the numbers are recorded on the plats of the ruins subsequently made. The skeletons and other specimens found are labelled with the numbers of the ruins and rooms where they are found, and the circumstances attending them are also recorded, so that each object is accompanied by a concise statement of its history, which, in connection with the preliminary and daily reports made by Mr. Cushing, will prove invaluable in the study of the collection, giving it a scientific worth such as few other collections possess. The circumstances under which objects are found, particularly when observed by one competent to make deductions from those circumstances, are frequently of even more value than the objects themselves in their relation to the main purpose of such explorations — the understanding of the people of whom they are relics.

The drive between the two camps becomes a familiar experience. It is made by some one in a buckboard almost daily, Mr. Cushing keeping close watch of the progress of the excavations. In the early weeks of my stay the intervening region is still a wilderness, with a clearing only here and there, so we cut straight across country through the various patches of mesquite, sage-brush, and greasewood that make up the wilderness. It is more difficult to find the way over these broad valley-plains than one might think, in spite of the landmarks presented by the neighboring mountains, for the spot one seeks is difficult to find amidst the general flatness of the land and the uniform character of the surrounding objects, which, amidst the various rambling cart-ways, make even the road itself hard to follow until one has made the acquaintance of its details through familiarity.

The landscape undergoes a rapid transformation in the course of a few weeks. Here and there, the plain is dotted with the camps of laborers engaged in clearing it, consisting of Mexicans at work for some contractor who has undertaken the job for the owner. Our nights are enlivened by the brilliant brush-fires gleaming around us in all directions, near and far. The mesquite trees are cut down and burned in piles above their roots, whose ramifications are followed by the smouldering combustion, leaving the ground ready for the plow when that instrument shall eventually be brought into requisition, which will probably not be for two, or even three years, for the mellow, rich soil needs no plow at first. A seed-drill rapidly sows the grain when the ground has been cleared, and the only labor then required is to irrigate and harvest; the next year, even the labor of sowing is unnecessary, for a luxuriant volunteer crop springs up from the self-sown, ripened grain, and often, the second year, there is still another volunteer crop as abundant as the first!

The growth of sage-brush or greasewood is cleared off with slight trouble or cost; a stout bar or beam is dragged across the land by a pair of horses, one attached to each end. The bushes are displaced by the powerful leverage at their bases as the beam is dragged over them. The team then follows the same course in the reverse direction and completes the destruction, either yanking up the brushes by the roots, or breaking off the brittle wood close to the ground. The brush is finally gathered into great piles and burned, making a strong, clear flame that shows across country for a great distance.

It is not long before the whole country is cleared, changing the aspect of the locality entirely. The land stretches away almost as smooth as a floor for miles, the very uniformity in contrast with the rugged mountain-chains around giving it a certain attractiveness akin to beauty. The tents of the settlers follow those of the clearing parties. It is an easy matter to become domiciled in this region, with its mild climate, unlike the settling of the rigorous Northwest: no shelter is required for stock, and little for the people, who live at ease in light tents, with their domestic belongings scattered about them in the dry air, until their first simple cottage of adobe or boards is ready. Not unfrequently one sees a handsome new buggy standing with evident ostentation before the tent of a new-comer, looming up prominently from a distance.

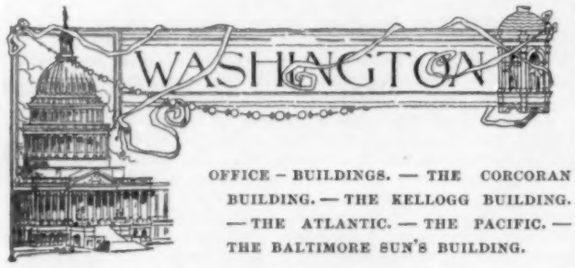
The greater part of the land is taken up under the Desert-land Act, which, in order to encourage the reclamation of the desert, enables a citizen, or a man intending to become a citizen, to take up a whole section of 640 acres, a square-mile, in the arid regions of the country, on condition that it be cleared, irrigated, and cultivated within three years from the time of entry, on the payment, at the end of that time, of either $1.25 or $2.50 an acre, according as the land is within the limits of a railway land-grant or not, the latter, or "double-minim" price, being charged in that event; so that, for $800 or $1,600, one can obtain a square-mile of land, and, as only one-fifth of the amount has to be paid at the start on making the entry, the land will, of course, pay for this, and also the expenses of clearing, beside a handsome profit, if it be brought under cultivation at once.

Much of the land is also obtained by settlers under the Homestead, Preëmption or Timber-culture Acts, each of which permits the taking-up of a quarter-section, or 160 acres. It is possible for one man to take advantage of all these acts, and so obtain from the Government 1,120 acres of some of the richest and most valuable agricultural land in the world. Many of these settlers, who came into this valley a few years ago with nothing but their blankets, have already handsome fortunes.

Before I leave the valley, in mid-April, the greater part of this land, which I first saw as a primitive wilderness, is green with young grain. It will not be long before it all presents the same aspect as the beautiful homestead-region of Mesa City, the Mormon town close by Las Acequias. Driving towards the latter camp from Los Muertos, we see Mesa City simply as a long line of trees in the distance, with a few houses of recent settlers scattered here and there in the open on the hither side. It seems but a single line of trees bordering some irrigating canal, but, when we have once penetrated it, we find that it is the border of a beautifully embowered

town, with neat houses and long, shady avenues enclosing many a square-mile of vineyard and orchard. The little gurgling streams that run rapidly everywhere by the roadside beneath the rows of tall cottonwoods, which, with all their great trunks and spreading boughs, are but a few years old, are the secret of this prosperity. The gravelly soil of this spot was despised by the less intelligent Gentiles of the valley as comparatively worthless, but the more experienced Mormons at once saw that, for fruit-culture, it could hardly be surpassed. Mesa City, like scores of other Mormon towns that have sprung up in this part of the world, affords a practical example of what can be done by intelligent and systematic coöperation in a community, great economies being effected by the union of all the proprietors of the land in introducing a water-supply for irrigation, and economically administering it, so as to make it in the distribution utilized to the utmost; also by a well-devised arrangement of the land under common agreement, that enables great economies in the construction of boundary-fences, and also in its cultivation or use as pasturage; by carrying on other works in common, and thus effecting a great saving in labor; and again by establishing coöperative stores, where all members of the community can purchase the best of supplies in great variety at substantially cost-price, making, of course, a great saving in the expense of living. The Mormons accomplish all this by their superior methods of organization acquired in their years of isolation from the rest of the world; the necessities of their situation, as well as their devotion to a common cause, teaching them the advantages of working in coöperation, both for the individual and the community. For this reason the Mormons are, as a rule, far more prosperous than their Gentile neighbors.

Sylvester Baxter.



OFFICE-BUILDINGS. — THE CORCORAN BUILDING. — THE KELLOGG BUILDING. — THE ATLANTIC. — THE PACIFIC. — THE BALTIMORE SUN'S BUILDING.

THREE years ago there was nothing, as the term is understood in other cities, that could be classed as an office-building in Washington City. To-day we have several that claim attention, at least, for their magnitude, convenient arrangement and cost, as well as one or two for their artistic effect. The Corcoran Building, on Fifteenth Street, built some twelve years ago, was the first attempt at the construction of a large building devoted principally to office purposes. This building was designed by Mr. James Renwick, of New York, and cost in the neighborhood of $300,000. The ground-floor is taken up entirely by stores fronting on Pennsylvania Avenue, Fifteenth and F Streets. To reach the first office-floor, it was formerly necessary to climb a flight of steps, between eighteen and twenty feet high, and the elevator started in this second story. Recently, a great improvement has been made in this respect from plans by Cluss & Shultz, architects, by sacrificing a part of one of the stores, narrowing the original stairway and changing the space thus gained into a hall leading to the elevator, which has been extended to the ground-floor. The building is rectangular, the interior rooms and water-closets being lighted by a large light-well covered with glass. These rooms are poorly lighted and poorly ventilated. The exterior is built of red and buff brick, and the design is a modern Renaissance. The effect produced by the composition is not at all pleasing, as it has the appearance of a huge box pierced by numerous small and distinct openings, each treated with pilasters, cornice and pediments in buff. The main cornice of the building, as well as the cornices and pediments over the windows, are built of boldly projecting brickwork. The effects of the weather and time show that brick is not the proper material for such heavy projections, as the brick have been falling from the cornice so often that it has been found necessary to take down the boldest members of the cornice and substitute galvanized-iron in its stead.

The Kellogg Building, on F Street, designed by R. I. Fleming, was the first building devoted entirely to office purposes. It is conveniently planned, with well-lighted rooms and the ordinary office arrangements. The design is nondescript, stiff, poorly proportioned and inartistic; in fact, such a design as one would expect from a designer who was brought up as a carpenter.

The Pacific finished about two years ago and The Atlantic completed last fall, both of which are situated on F Street, are alike excellent in their arrangement, size and grouping of the rooms, elevators, stairways, water-closets and other small conveniences, as letter-boxes and speaking-tubes for each room. From an artistic standpoint they differ materially. The Pacific is commonplace to the last degree. This is made the more striking because of the evident effort after architectural effect, made by the introduction of pilasters, segmental arches and moulded brick, all put together in a monotonous manner and with poor proportions, which produces disagreeable effect on one of even limited artistic taste. The front of The Atlantic is a good architectural composition, if the ground-floor is omitted when it is taken into consideration. This floor is supported by small iron columns — small in comparison with the large stone piers which are above them in the second story. The second and third stories are built of Seneca brownstone, which is decidedly reddish in tone. The windows are grouped in three large semicircular openings which are deeply recessed. The windows of the third, fourth and fifth stories are grouped under three arches, with brick piers and arches, and terra-cotta caps and panels, with stone lintels and bond-stones. The seventh story is a row of small semicircular openings flanked by small terra-cotta columns and caps. The line between the seventh and eighth stories is distinctly marked by a wide foliated terra-cotta moulding. The eighth story is a series of rectangular windows, the whole being finished with a simple parapet-wall and terra-cotta coping. This building can be praised for its good points, but it is something of a pity that its construction should not be fireproof, and that the modelling of the stone-carving and the terra-cotta ornamentation should lack boldness and decision. They are so flatly treated that they lose their distinctive character across the street, and the street is not wide.

The *Sun* Building, erected by the Baltimore *Sun* on F Street, is decidedly the most costly and pretentious office-building in the city. It has been completed in the last year. While the Atlantic Building was designed by Mr. J. G. Hill, ex-Supervising Architect of the United States, the *Sun* Building was designed by Mr. A. B. Mullet, also ex-Supervising Architect, and Mr. Hill's predecessor. The designer in the case of the *Sun* Building has not been nearly so successful in the treatment of his problem as was the designer of the Atlantic. The front of the former is in white marble. With the exception of the first two stories, the windows of which are grouped into two large and one small round-arched opening, which are designed in a free Renaissance style, the design of this building has nothing to recommend it to favorable consideration. From the second to the eighth story the space is occupied by two long or elongated oriel windows springing from lion-head corbels, which cut through and destroy the apparent integrity of the arches of the second story. All the fifty windows above the second story to the roof are made on the same pattern (and it is an insignificant and weak pattern), making the whole painfully monotonous. The eighth story, with its sham French roof and a central tower, seems to have no reason for existence, unless it is intended by their ungainly stiffness to act as a foil for the five monotonous stories below.

Decidedly in this building's favor is the fact that it is well and substantially built, and its construction fireproof. The plan is of the dumb-bell form, with the stairways, elevators, and water-closets placed in the narrow central portion on two light-wells. It cost about five hundred thousand dollars, so I understand — a large amount in Washington for a building about 115 by 150 feet. There is a history connected with the selection of a design for this building, which is of interest to the profession as a warning against going into competition without clear instructions, or with merely verbal instructions: Several architects were informed that they could submit sketches, and that from the sketches submitted one would be selected, and that the rejected ones would not be paid for. The four or five architects mentioned availed themselves of the tempting bait, which was to be the most costly business structure in the city. The competitors, after waiting patiently, or rather, impatiently for a month or more, discovered, much to their chagrin, that the contract for making the plans had been awarded to an architect who did not submit a sketch in the competition. Two competitors wrote for their plans repeatedly (the others were returned, I think, in a short time after they were submitted), but did not receive them for some months. One set, in particular, was written for repeatedly, and several excuses were received in reply, giving as reasons why they were not returned that one of the *Sun's* agents would be over in a day or two, and would bring them with him. On the first two or three trips the agent forgot them, but would bring them the next time. Finally, they were returned by this same forgetful agent. It is a little strange that it did not occur to the Baltimore *Sun's* business men that two cents would have returned the sketches by the United States mail. As the building proceeded in construction, the architect of the retained sketches was very much surprised at the remarkable similarity between the design of the first two stories and the general plan of the building with the sketches he submitted. Whether this was simply a coincidence, only the proprietors or their agents can tell.

All the office-buildings mentioned run up above the adjoining property fifty feet or more, and many of the rooms in the four or five upper stories depend for at least a part of their light upon windows in the side walls. This, of course, will prove unfortunate in case the adjoining property-holders at some time carry up their buildings to the height of the office-buildings, in which case the light in many of the rooms will be limited to a serious extent.

It would not do to complete the subject of office-buildings without mentioning the small lawyers'-office building erected recently from the plans of W. M. Poindexter & Co. This building is on a corner, constructed in simple brickwork, and is unobtrusive, but effective, in its design. Being on a corner and narrow, the rooms are well lighted. It has an elevator and other office conveniences.

: CANADA :

SCHOOL OF ARCHITECTURE, TORONTO. — GREEN CHRISTMAS. — MONTREAL ICE-CASTLE. — NEW ROMAN CATHOLIC CHURCH. — SUCCESSFUL SPECULATION. — TORONTO ARCHITECTURAL GUILD. — ENGINEERING MATTERS.

THE leading architects of the city of Toronto, with whom the formation of an Architectural Association is a matter of great interest, were agreeably surprised early last month by a circular from the Minister of Education for the Provincial Government, addressed to them, requesting them to meet him for the discussion of a scheme he had in hand of establishing in connection with the School of Practical Science "full courses of instruction in applied chemistry, applied mechanics, and architecture." The invitation was extended to a number of manufacturers, skilled mechanics, and others having interests of a similar character, and on the 19th of the month, when the meeting took place, one hundred and fifty to two hundred representative men met the minister, and a very interesting and lively meeting was held. The minister directed the attention of the meeting: 1, to the consideration of the various kinds of skilled labor now required to carry on the industries of the country, and the best means of rendering it more productive, and, therefore, more valuable; 2, to the consideration of what courses of instruction would be necessary to provide such skilled labor at home as is now supplied from abroad; and 3, to inquire what industries (if any) not yet established in Ontario could be made productive, provided we could supply them with skilled labor. The minister called upon the engineers and engine-builders, and then upon those interested in the manufacture of woollen goods and of dye-works in connection with this industry, and there was not one who did not agree that the establishment of such a school as he proposed would be of immense benefit to the trades represented, and, therefore, to the country generally. The architects were then called upon to express their opinions. It will be remembered that a deputation of architects waited upon the minister some time ago with reference to the establishment of a chair of architecture, so that he knew this school would meet with their approval if founded on a proper basis, but his knowledge of this was confirmed and strengthened by the answers given to his questions. It was shown that no means existed in Canada for the testing of the strength and properties of the various building materials. Architects specify iron girders and columns — cements and mortars, to be composed according to given quantities: they go upon their own practical experience with regard to ironwork, and upon private experiments with cement and mortar, but this at best is unsatisfactory, and by no means equal to the satisfaction of having materials tested on the spot by proficients. The minister was also told that the architects would undoubtedly make their pupils attend classes for instruction in the art and science of architecture, were such a school to be established. A scheme will be presented at the next session to the Legislative Assembly, and it is sincerely to be hoped that no time will be lost before this contemplated school will be developed and in working order.

It is many years since we have had a "green" Christmas in Canada. But two days before Christmas the last vestige of snow in the streets of Toronto vanished, and Christmas Day opened mild and inclined to be showery, while in Montreal the rain fell heavily the whole day. The new year has opened without any change. The daily prognostications are "fair and mild," and with the thermometer rising to 40°, and sometimes above, with the lengthening days and the fairly clear atmosphere, it is hard to realize that this is January, and not April. Quebec and Montreal keep a little colder, as a rule, than Toronto, and there is more snow, but the temperature of the Northwest is very high above the average. Consequently, building operations proceed almost without interruption and without much risk. Many people who intend to build next year would have been glad to have got their houses started a couple of months ago, but, unfortunately for them, there was no weather-prophet to tell them we should have no winter, so far. Consequently they took the advice of their architects, and put off work till the spring. The sudden changes of temperature to which the climate is subject at this season render it impossible to say what a day may bring forth: it is necessary to cover up the day's work every night, for no one can tell that the thermometer will not be below zero the next morning.

The good people of Montreal have had an anxious time; the question has been daily: Will the cold be severe enough for the necessities of the winter carnival. These carnivals were an annual week of festivities, but it was decided that they were held too often, and if held once in two years they might be conducted on a more attractive scale and would prove a greater novelty, and, therefore, attract more visitors. The ice palace is, of course, the central feature, and, with the exception of last year when no carnival was held, it has been constructed of huge blocks of ice, averaging two or two-and-one-half feet thick, cut in the river, brought up to the site, hoisted by derricks and being slightly shaped with a hatchet, set in position, where usually they soon freeze together. This year, however, the ice is only about one foot thick, entailing more labor. Messrs. Hutchinson & Steele, architects, have hitherto designed the castle or palace, which usually occupies a considerable area, and rises to a general height of forty to fifty feet, with towers in addition. For the palace of the former carnival a few architects were asked to compete, but the request was not generally responded to. But the necessary restrictions on the account of the peculiarity of the material to be employed, did not allow of very great variety in design, consequently the same firm of architects who had undertaken the work on previous occasions carried it out.

In addition to the already numerous churches of the Roman Catholics of Montreal, another one is talked of. It is to be built in the suburb of Point St. Charles, and $100,000 is the proposed expenditure. Point St. Charles is a poor neighborhood, but this fact seems to have little or no relation to the construction of Roman Catholic churches. Already the parish church of Nôtre Dame, capable of seating 8,000 persons, and the great Church of St. Peter's, which requires in the neighborhood of $300,000 to complete, are a considerable burden to be borne by the faithful, not to mention the smaller churches, almost without number, supported by separate congregations, or by the revenues from the properties held by the various orders of nuns. At Longuielle, a village on the shore opposite Montreal, but a little to the east, with a very poor population, a great church has just been completed; the people who were ragged and but half-fed supplied the funds, and, it is to be inferred, that the poor residents of Point St. Charles will be made to pillage themselves for the same object and, of course, for the benefit of their souls.

The rulers of the St. James Street Methodist Church undertook a great speculation. Their church was too small for them, and was out-of-the-way for the congregation. The site is a very valuable one, almost in the centre of the city, and was adjoined by shops and offices crowding closely against it. They decided to build a larger church in a more convenient situation, and sell the old place. A purchaser could not be found; then they determined to pull it down and erect a six-story block of offices (to which allusion was made in a former letter). This building is not completed, but an offer has been made by an insurance company to purchase it for the sum of $400,000.

The Architectural Guild of Toronto holds its first annual meeting early in January, and it is probable that the reports of the various committees to be presented at this meeting will give a fair idea of the useful work done by the Guild in the first year of its existence. The report of the Committee on the Matter of Professional Charges is one of interest to all. Architects in Canada are fully alive to the necessity of some change for the better in the usual tariff. Of course, the one and two per centers, who cannot rightly be called architects and, therefore, can never become members of a professional body or corporation, will still go on with their scheming, sneaking and underhand methods — the Guild has nothing to do with them. The intention is to get its members to agree to a regular system; its membership consisting of all the principal architects of the place, and, therefore, being the only representative professional body in Canada.

The deepening of the ship-channel of the River St. Lawrence between Montreal and Quebec to a uniform depth of 27½ feet has been completed, and the history of the successive deepenings illustrates the progress of oceanic transport business during the last twenty-odd years. Previous to the date of Confederation, July 1, 1867, the ship-channel had been improved at various dates, until at that time there was a channel 300 feet wide by 20 feet deep. The increasing trade necessitated deepening this, and a Bill was brought before the Dominion Parliament and passed in May, 1873, by which permission to contract a loan of $1,500,000 for this purpose was granted. Two feet was the extra depth decided on: operations were commenced in 1874, and by the end of 1878 the work was completed, at a cost of $1,153,512. The rapid increase in the size of vessels engaged in the Atlantic trade immediately required a deeper channel, and as soon as the last works were completed it was decided to deepen again, another three feet. Four years afterwards, 1882, saw the completion of the channel 25 feet deep and 300 feet wide. The quantities of material dredged out by deepening from 20 feet to 25 feet were: shale-rock, 289,600 cubic yards; earth of all sorts, including boulders raised by dredges, 8,200,000 cubic yards; boulders lifted by lifting-barges, 16,700 cubic yards. The channel through Lake St. Peter was the longest piece of dredging in one length, 17¼ miles, with a width varying from 300 feet to 450 feet, involving the removal of 8,000,000 cubic yards. The total cost of this five feet of deepening was, I believe, $2,780,130. In 1885 another loan was applied for and immediately granted, for $900,000, this time, to deepen another two and one-half feet of the whole area of the channel, and it is this work which was successfully completed in the beginning of October last, and which was opened by the Montreal Harbor Commissioners by a trip in the Allan Line steamship "*Sarmatian*" with a large number of guests.

After a great deal of time spent in discussion of the *pros* and *cons*, which, for such a scheme, were matters of great importance, it has finally been decided to construct a ship-railway from the Bay of Fundy to Baie Verte, and the cost is set down as in the neighborhood of five million dollars. If carried out, as it is proposed, with

expedition, this ship-railway in Canada will probably be the first in use in the world.

Toronto has in hand a piece of engineering that will by its result add considerably to its trade facilities, and the first sections of the work are nearly completed. The River Don is a small river to the east of Toronto, running in a southerly direction into the bay, so small and narrow that it was of no use commercially, although the supply of water was abundant. A scheme for straightening and widening and deepening this river was determined upon, the shores were to be reduced to a uniform level, and waste marshy land subject to annual inundations was to be reclaimed, and thus a new district with water facilities for transport purposes was to be prepared for warehouse and factories. Mounds or banks, in some parts 70 feet high, have been cut through and entirely removed, and the place now represents a desolate waste, flat as a pancake, with a wide canal in the centre. The new line of the Canadian Pacific Railway will enter Toronto along one of the new banks. It is estimated that the land reclaimed and levelled, with the advantages of the canal, will be as valuable as any land in the city, the price being $200 per foot front. The total reclaimed area is about 60 acres, valued at $6,000 an acre.

Ottawa has in hand a scheme for the construction of a bridge to connect the two shores of the Ottawa River at a distance of about two miles from the city, east from Rockcliffe, near the residence of the Governor-General, to Gatineau Point. The cost is estimated at $250,000, but the corporation expect the Provincial and Dominion Parliaments will contribute towards the expenses.

The little suspension-bridge spanning the river just below the Chaudiére Falls at Ottawa is to be replaced by a new bridge, to cost $30,000. This little bridge is well known to most visitors to the city, as from it a fine view of the Parliament Hill is obtained in one direction, and the Chaudiére Falls in the other. The volume of water over these falls is considerable, and they are well worth a visit. "The Devil's Cauldron," on the south side of the river, is one of those pits into which the water rushes at a terrific rate, seethes and boils, and never comes out again. Under the bridge are the chutes for the lumber rafts, by which they are taken from the higher to the lower level of the river. In the season distinguished visitors to the city are usually treated to a voyage on a raft, a rather exciting and slightly dangerous species of summer toboganning. The new bridge will be 236 feet long by 45 feet wide.

Contracts for the construction of the Saulte St. Marie Canal on Canadian land are let, and the work is to be proceeded with immediately, as the weather permits.

SOCIETIES

ST. LOUIS ARCHITECTURAL LEAGUE.

WHERE has been formed in St. Louis an organization for advancement and improvement in architecture and kindred arts.

This organization is known as the St. Louis Architectural League, with officers as follows: Louis C. Bulkley, President; J. P. Annan, Vice-President; H. E. Eames, Secretary; J. L. Wees, Treasurer; L. H. Seubert, Corresponding Secretary and Librarian.

This organization is formed somewhat after the plans of the Chicago Architectural Sketch-Club. Suitable rooms having been procured and furnished in a respectable manner. Regular meetings are held every two weeks. The rooms are open all day from 10 A. M. until 10 P. M. Special evenings are given to sketching and lectures. There are twelve monthly competitions, one semi-annual and one annual competition. The subject of the first monthly competition is a mantle for the League Rooms.

L. H. Seubert, *Corresponding Secretary.*

COMMUNICATIONS

HOSE-PORTS IN PARTY-WALLS.

New York, Dec. 29, 1888.

To the Editors of the American Architect:—

Dear Sirs,—I saw in a recent issue of your paper, an article on Iron Shutters and Solid Roofs, in which, it is recommended that one shutter be left so as it can be easily opened from the outside. Now while that would be of some advantage it would be very small, and does not solve the problem of preventing large fires. The objective point at a fire is, of course, the material burning in the building, as the building itself, without the material, would not make much of a fire, and when a position can be reached from which a stream of water can be brought to bear upon the goods on fire, it can be easily extinguished. The penetration and effect of streams from the street can be seen by a line representing the front of the building "marked for window openings," and a line for the street, it will be seen that above a certain height the stream has no penetration and consequently no good effect but rather acts the other way as it has a tendency to create a draught. The proper way to fight a fire is from the inside which is done when possible; but at times it is impossible to reach the material burning from the inside, and the fire-department is driven to the street which necessitates street streams. It is at this point that owners and occupants of buildings should provide means to assist the department. My experience of the long and tedious job of cutting through party-walls at fires has suggested to me the advisability of having a permanent orifice in the party-wall that could be utilized by the department and would respectfully ask your opinion on the same. Yours, L. F. Stevens.

Primitive Well-drilling.—Abbe Huc thus describes the system of deep-earth boring practised in the district in which he has for some time resided. A wooden tube six feet in length is first driven down through the surface soil. The tube is held at the surface of the ground by a large flagstone, having a hole in the centre to allow the tube to pass through and to project a little above it. A cylindrical mass of iron, weighing about four hundred pounds, hollow and pointed at its lower end, and having lateral notches or apertures, is jerked up and down in this tube at the end of a lever, from which it is suspended by a rope. This kind of "monkey" disintegrates the rock, the débris of which, converted into sludge by water poured in, finds it way through the lateral apertures into the interior of the cylinder. By raising the latter at intervals, this sludge is removed from the bore hole. The rate of boring in rock of ordinary hardness is one foot in twelve hours. Only one man is employed at one time to work the lever. By this means wells of 1800 feet deep are sunk in about two years by the labor of three men, relieving one another every six hours.—*Boston Transcript.*

TRADE SURVEYS

The ability which American ship-builders and manufacturers of ship-building material are showing in the construction of vessels is conspiring as much as anything else to aid the Government's efforts to supply itself with a navy. The Delaware ship-builders have made wonderful progress during the past three years in workmanship, and some fine vessels are now being turned out in the Delaware yards. Several war-ships under construction will be of the most advanced type. The speed of those that have been tried is up to the expectations and specifications of unarmored vessels the Government has named. Five have been recently launched, including a dynamite cruiser, which has developed a higher rate of speed than specifications required. It is a model of neatness and of marine engineering, and excels like devices of all other Governments. There are at present six vessels building. One is a first-class torpedo boat. The tonnage of those under construction ranges from 4,324 to 1,700 tons. The required speed is 19 knots an hour. The speed of the cruisers in commission is from 19 to 23 knots, and the tonnage from 2,000 to 5,300 tons. The new navy, when completed, will be equipped in all with 371 guns, from 5 to 8 inch bore, besides 3 15-inch dynamite guns of all armored vessels. Two are building which will carry six guns: four, 10-inch, and two, 12-inch. Five are completed as far as the hull, which will carry four 10-inch guns each. Public sentiment is to be credited with the creation of a proper war-like spirit upon the part of the Government. The work of constructing a navy will be pushed under the incoming administration, and during four years it is probable that the United States Government will be able to protect itself against any probable attack that differences in any event might bring about. Within the past thirty days information has been received from interior points concerning the probable activity on boat and river-craft building for the lakes and rivers. A great deal of tonnage is now projected, and by the 1st of April, it is said, on good authority, that the lake boat-yards will be crowded with work for the rest of the season.

Several large interior iron works have already received inquiries and specifications for material, and the manufacturers of marine boilers and engines and of engines of all kinds for river and lake service are living in daily expectation of large orders for supplies of this character. The manufacturers of structural iron have reduced prices 11.20 cents per ton in order to bring in increased trade. Quite recent advices confirm statements heretofore made relative to the undertaking of a large amount of bridge building in the Northwest and along the Pacific Coast. From present indications the adjustment of railroad troubles will be brought about without any serious legislative interference upon the part of Congress. The railway managers recognize that interference of that kind in the present complicated relations of railroad managers would be most disastrous. They recognize further that there is a strong public sentiment in favor of establishing further restrictions upon railway managers and of drawing the line still more closely about them. It is this knowledge that has made a feeling of harmony among railway managers possible. If Congress is compelled to act it may act without proper attention and knowledge as to how to arrange legislation that can reach the points that our intricate railway conditions are developing. Whatever combination is made each individual system will retain its individual identity and control over its own interests but it will surrender to the authorized authority the power of making rates. A great many evils still exist in the way of hauling freights in the thousands of industries. A great deal more is charged per ratio for the short haul than for a long one. Commissioners know all these things and are slow to drive the managers into obedience to the law. Their willingness to obey the law is accepted in lieu of obedience at present. Perhaps this is the most that can be expected while they are passing through the transitional period. All these comments and discussions point ultimately in the direction of some sort of Government control. Neither public sentiment nor public interest demands that such an ultimate result be reached but the influences which are at work are driving the railroad interests in that direction.

Trade and industrial reports from all the industrial and commercial interests of the country make a very good showing as to volume of business. They show that production is under control, that competition is not likely to reassert itself to any damaging extent, that prices are likely to be uniform throughout the year coming in and that the evils which have brought about depressions and panics in years past will not be permitted to assert themselves to any great extent.

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Residence of Mr Frank Campbell

J. A. Pempsell Architect York Pa.

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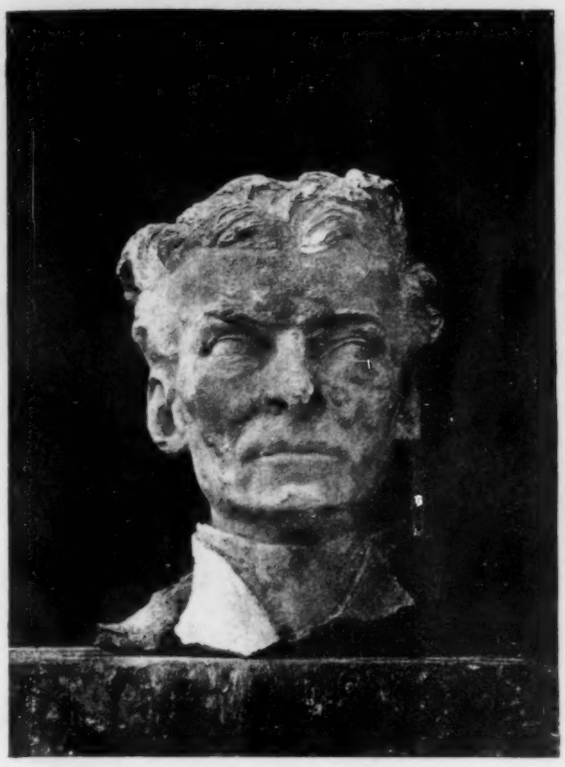

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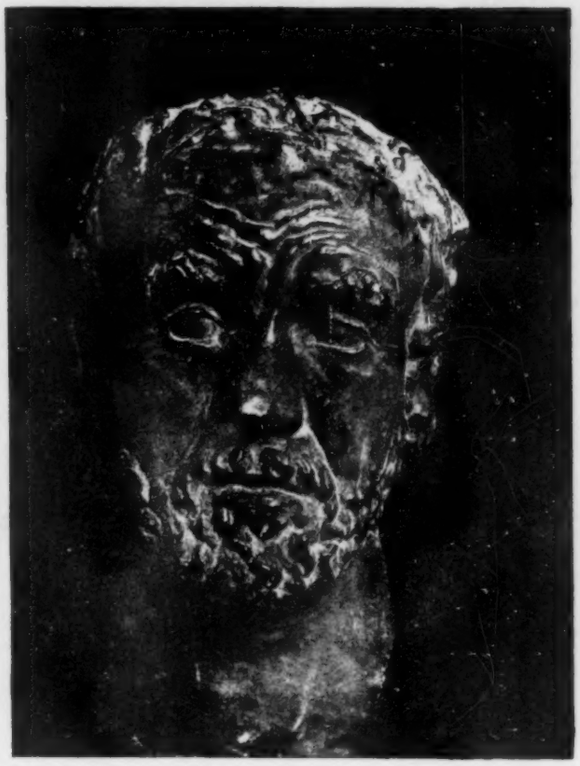

"THE BROKEN NOSE"

"THE AGE OF BRASS."
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